

# NANDESARI INDUSTRIES ASSOCIATION: Revolutionizing Air Quality Monitoring For Safer Communities



## **INTRODUCTION: A Legacy of Environmental Stewardship**

Since its establishment in 1967, the Nandesari Industries Association (NIA) in Vadodra, Gujarat, has played a pivotal role in managing one of the region's oldest industrial estates. Home to over 80% micro and small-scale businesses, the Nandesari GIDC industrial cluster has been a hub of innovation and economic activity. However, as industries flourished, so did their environmental footprint, prompting NIA to take bold steps to improve the air quality for nearby communities. In June 2021, NIA partnered with Oizom to deploy the Polludrone, revolutionizing how air quality is monitored and managed in industrial zones.



## **THE CHALLENGE: Balancing Growth with Sustainability**

As an industrial hub, Nandesari faced escalating environmental challenges stemming from emissions that impacted both the environment and local residents. The key hurdles included:

- 1. Unidentified Pollution Sources:** Pinpointing specific industries responsible for harmful emissions was critical.
- 2. Complex Pollutant Range:** Monitoring a wide spectrum of pollutants, including PM, SO<sub>2</sub>, NO<sub>2</sub>, CO, TVOC, NH<sub>3</sub>, HCl, Cl<sub>2</sub>, H<sub>2</sub>S, and O<sub>3</sub>, was a technical challenge.

- 3. Odour Issues:** Odours from gases like H<sub>2</sub>S, Cl<sub>2</sub>, and TVOCs caused discomfort and raised health concerns for nearby communities.
- 4. Meteorological Monitoring Needs:** Data on wind speed, direction, temperature, and humidity were required to analyze pollutant dispersion.
- 5. Regulatory Compliance:** Ensuring adherence to Gujarat Pollution Control Board (GPCB) norms was essential for maintaining operational legitimacy.

Without real-time data, it was impossible to react to sudden spikes in pollution or identify and address emission sources efficiently.

### **THE SOLUTION: Polludrone by Oizom**

To address these multifaceted challenges, NIA installed three Oizom Polludrone devices across critical locations within the industrial zone. The Polludrone offered a comprehensive air quality monitoring solution equipped with the following features:

- 1. Multi-parameter monitoring:** Monitored a wide range of pollutants, including particulate matter (PM), gaseous pollutants (SO<sub>2</sub>, NO<sub>2</sub>, CO, TVOC, NH<sub>3</sub>, HCl, Cl<sub>2</sub>, H<sub>2</sub>S, and O<sub>3</sub>), and odorous gases.
- 2. Meteorological Data Integration:** Provided wind speed, direction, temperature, humidity, UV levels, and rainfall data to understand pollutant dispersion patterns and industries emitting pollution.
- 3. Real-Time Monitoring:** Delivered continuous, accurate data via the Envizom platform, enabling informed decision-making.
- 4. Proactive Alerts:** Notified stakeholders of critical pollution spikes for immediate corrective action.

With the integration of wind speed and direction sensors, NIA could identify emission sources and analyze pollutant dispersion with wind rose and pollution rose charts, creating actionable insights.



#### **INSTALLATION DETAILS**

**3 UNITS of  
POLLUDRONE**

### **THE TRANSFORMATION: Data-Driven Environmental Management**

The deployment of Polludrone resulted in significant improvements for NIA and the surrounding communities:

- 1. Enhanced Air Quality:** Real-time monitoring and actionable data helped industries reduce emissions, leading to measurable improvements in air quality for local residents.
- 2. Proactive Pollution Management:** The ability to track emission sources and pollutant dispersion allowed NIA to notify industries of compliance issues and suggest modifica-

tions in their processes.

- 3. Regulatory Adherence:** With precise data, NIA ensured compliance with GPCB norms, bolstering environmental credibility and operational legitimacy.
- 4. Community Impact:** Reduced odour levels and better air quality positively impacted the health and well-being of nearby communities.

A representative from NIA remarked, “With Polludrone, we’ve transformed our approach to air quality management, protecting the environment while empowering industries to make informed decisions.”

### ***BROADER IMPACT: A Model for Industrial Sustainability***

NIA’s initiative has set a benchmark for industrial zones across Gujarat and India. By combining cutting-edge technology with a commitment to sustainability, NIA not only ensured safer air for its communities but also demonstrated how industrial hubs can balance growth with environmental responsibility.

### ***CONCLUSION: Pioneering Safe Air for Generations***

The partnership between NIA and Oizom showcases how technology can redefine industrial air quality management. Through Polludrone’s advanced capabilities, NIA has created a safer, healthier environment while fostering a culture of sustainability among its industries.

Oizom is a company specializing in environmental monitoring solutions. They offer products to monitor air quality, weather conditions, and other environmental factors. Utilizing advanced sensor technology and data analytics, Oizom aims to provide actionable insights for construction, industrial compliance, and community awareness. Their solutions can be applied in various sectors including government, industries, and community initiatives.