# Environmental Sensing and Monitoring Technologies: Global Markets

Market Research Report | 2024-11-25 | 148 pages | BCC Research

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**Report description:**

Description

Report Scope:

In this report, environmental sensing and monitoring is defined as the use of sensors to detect chemical and biological contaminants or measure physical phenomena and convert that information into measurable data. Environmental sensor monitoring networks represent the aggregation of a large numbers of individual sensors into large networks. Environmental sensors can be in thousands of forms and types based on a wide range of physical and chemical principles with varying types of usable output. Typically monitored contaminants include metals, volatile organic compounds (VOCs), biological contaminants and radioisotopes.
The applications of sensors are extremely varied. Areas of environmental focus include water supplies and watershed data, vehicular emissions, combustion of fossil fuels, agricultural runoff, industrial and mine waste disposal, ocean spills and dumping, climate change, weather monitoring and seismic events. This report excludes any standalone software and post-sales service providers (including those involved in consulting, education and support).
This report analyzes the global market for environmental sensing and monitoring technologies and examines market trends. It includes 2023 as the base year and forecast data from 2024 to 2029. The report analyzes the global market revenue ($ millions) in terms of solution, sampling method, type, applications, end users and regions (North America, Europe, Asia-Pacific, and the Rest of the World). It also examines the trends and challenges driving the market, as well as the environmental, social, and governance (ESG) developments; patents; and emerging technologies.

Report Includes:

- 45 data tables and 55 additional tables
- Analysis of global market trends, with market revenue data for 2023, estimates for 2024, forecast for 2025, and projected CAGRs

through 2029
- Estimates of the size and revenue prospects of the global market, along with a market share analysis by solution, sampling method, type of sensor, application, end-use industry, and region
- Facts and figures pertaining to the market dynamics, technical advances, industry regulations, and the impact of various macroeconomic factors
- A look at the regulatory affairs and the level of government spending committed to the environment that will determine the future level of demand for environmental sensors
- A Porter's Five Forces model, and global supply chain and PESTLE analyses
- Overview of sustainability trends and ESG developments, with emphasis on consumer attitudes, and the ESG scores and practices of leading companies
- Analysis of the industry structure, including companies' market shares, strategic alliances, M&A activity and a venture funding outlook
- Company profiles of major players within the industry, including Robert Bosch GmbH, Veralto Corp., Honeywell International Inc., Merck KGaA, and PerkinElmer

Executive Summary

Summary:

Technological Advances and Applications  Advances in environmental sensing and monitoring technologies have enabled more accurate and more efficient monitoring of environmental parameters, providing insights for decision-making and conservation efforts. One notable advance is the integration of environmental sensors with the Internet of Things (IoT). IoT-enabled sensors can collect data in real time and transmit it to centralized platforms for analysis and visualization. This has facilitated the creation of large-scale environmental monitoring networks, allowing for a better understanding of environmental trends and patterns. For instance, air quality monitoring networks equipped with IoT sensors can provide real-time data on pollutants like particulate matter and ozone, enabling timely alerts and interventions to protect public health.

Another development is the miniaturization of sensors, making them easier to deploy. This has enabled the development of wearable sensors for personal exposure monitoring, as well as sensors that can be integrated into drones or satellites for remote sensing applications. For example, drone-mounted sensors can be used to monitor deforestation and illegal logging in remote areas, while satellite-based sensors can track changes in sea ice mass and ocean temperature.

Furthermore, advances in data analytics and machine learning have enhanced the capabilities of environmental monitoring systems. By applying sophisticated algorithms to sensor data, it is possible to identify anomalies, predict future trends and optimize monitoring strategies. For instance, machine learning models can be used to analyze historical air quality data and forecast potential pollution hotspots, enabling proactive measures to mitigate their impact.

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