

Aerospace expertise used to identify, track pollution

China Aerospace Science and Industry Corp has begun to use the expertise gained in the space and defense sectors to help the government handle air pollution.

“The control and prevention of air pollution, especially the PM2.5, requires a sophisticated and systematic effort involving an interdisciplinary combination of technologies,” said Zhou Xiang, chairman of CASIC Smart Industry Development Co, which specializes in planning and building smart cities.

The company is a subsidiary of the CASIC Second Academy, a major defense contractor that has rich experience managing complex, interdisciplinary programs, along with all the technologies required in the environmental effort, Zhou said, adding: “It can use its skills to help detect, monitor and analyze air pollution.”

The State-owned air-defense academy has abundant know-how and experience in systems engineering, optoelectronics, sensors, equipment control, and data collection and analysis – all of which are essential in the effort to mitigate air pollution, he said.

“You can’t resolve air pollution problems if you are unable to accurately monitor and forecast them. We can offer different solutions to environmental protection departments for them to monitor and analyze emissions from manufacturing industries, vehicles and residential areas,” he said at an intelligent industry forum on Thursday, the 60th anniversary of the founding of the academy.

Zhou’s company is working with a national-level key optics laboratory (also an academy subsidiary) to design instruments capable of identifying every hazardous gas emitted by factories by analyzing their light spectrum. Four or five such instruments will enable environmental protection authorities to monitor an industrial park in real-time, for example, around-the-clock and with less manpower and lower costs, he said.

To handle emissions from vehicles, CASIC Smart Industry Development has leaned on the Second Academy’s knowledge of infrared and ultraviolet tracking to develop equipment that can accurately nail cars discharging excessive exhaust and then transmit the information back to a control center. Authorities can then deal with the car’s owner.

The company has joined a demonstration program led by the Ministry of Environmental Protection that aims to monitor pollutants emitted by cars in about 30 cities in the Beijing-Tianjin-Hebei province region. It also signed an agreement with the city of Chengdu, Sichuan province, to deploy the equipment at major traffic junctions in the city starting in 2018, Zhou said.

In addition, the company is able to take advantage of the academy's leading status in weather radar and computer simulation technologies to forecast PM2.5 concentrations and movements, he said.

Air pollution is one of the top concerns of the Chinese public. People living in large cities complained about thick haze consisting of PM2.5 particulate matter – particles smaller than 2.5 microns in diameter that can harm lungs and enter the bloodstream – every winter over the past several years.

According to the ministry, PM2.5 is one of the biggest contributors to air pollution in Chinese cities.

President Xi Jinping has pledged to bring “blue skies” back to the Chinese people, and the government has stepped up laws and regulations to punish polluters, forced factories to install pollutant-reducing devices and continues to encourage and support the use of greener cars and fuels.

In 2016, the average concentration of PM2.5 was at least 30 percent lower than in 2013 in three major city clusters – Beijing-Tianjin-Hebei, and the Yangtze River and Pearl River delta areas, according to the ministry.