

12/05/1999

Air purifier removes 60 per cent of dust particles

Esther Tan

KUALA LUMPUR, Tues. - Researchers working on the Malaysian-made prototype outdoor air purifier have succeeded in achieving the target of eliminating dust particles in the atmosphere by 60 per cent.

The prototype, called the Zone Air Purifier 1 (ZAP-1) which was installed at the Puduraya bus terminal since May last year, is also able to remove between 70 per cent and 100 per cent of hydrocarbon from diesel fumes in a designated area of 12 to 15 square metres.

Science, Technology and Environment Minister Datuk Law Hieng Ding who inspected ZAP-1 today said this meant the air purifier could be used and commercialised.

"I will prepare a detailed report for the Prime Minister to decide on the matter," he said.

The idea to construct a giant outdoor air purifier was mooted by Datuk Seri Dr Mahathir Mohamad during the 1997 haze.

A collaborative study was carried out by the Chemistry Department and the Malaysia Electric Corporation Research and Development Sdn Bhd (MEC R&D) with inputs from Sirim Bhd, Quest Technology Bhd and Sungai Way Group Bhd.

A team of researchers from these organisations then decided on the device to clean air for a designated area.

The construction cost of the prototype is RM45,000 and it is expected to cost about RM50,000 when commercialised.

ZAP-1 has gone through four modifications since its installation to achieve the results.

Law said ZAP-1 was able to remove 60 per cent of particulates ranging in size from 0.5 to 10 microns. Initially it could only eliminate by 40 per cent.

Asked about other gases, Chemistry Department director-general Datuk Ti Thio Hock said the air purifier could not remove carbon monoxide or sulphur dioxide.

When the device was designed, the emphasis was on haze particulates and suffocating fumes like hydrocarbons.

"Our main intention was removing dust particles and hydrocarbons," he said.

Removal of the two gases requires a separate filtration system like a catalytic converter.

Hydrocarbon fumes from bus exhausts are the main cause of the "choking feeling" experienced by passengers at the basement platforms of Puduraya. Law said passengers standing under ZAP-1 could breathe cleaner air because of the removal of hydrocarbon fumes. The air purifier can accommodate about 10 to 15 people standing directly under it.

There is also a cooling effect due to air blown from the air purifier.

The "clean air zone" is bounded within a virtual wall created by an air curtain. Filters in the device will clean the air within the wall.

ZAP-1 consists of a main body housing all the switches, sensors, axial fan, silencer, filters and an umbrella roof.

Air from the bottom part of the body is drawn through filters and directed to the edge of the roof where the air flows out to form an air curtain.

The air curtain contains the clean filtered air and at the same time prevents dirty air from outside entering the clean air zone.