

## Replacing old Hong Kong buses will save hundreds of lives, says study

Replacing Hong Kong's ageing buses with those meeting newer, more stringent emission standards could help save hundreds of lives, a study shows.

The study, published in the peer-reviewed *Journal of Benefit-Cost Analysis*, says that 1,260 lives can be saved in the next 13 years if the city's 5,170 buses built to Euro I, II and III standards are replaced now with cleaner Euro V models.

At an estimated cost of HK\$15 billion split evenly between the government and bus operators, the bus replacement would generate HK\$26 billion in "net economic benefits" for Hong Kong by 2026, including lower hospital costs and regained productivity, the study says.

The government already plans to phase out all pre-Euro V buses in 18 years and under this plan Euro IV models would stay on the roads in the meantime.

The European emission standards define acceptable limits for exhaust emissions, with newer standards meeting stricter levels.

Author Leung Weiwen, of Singapore Management University, said the proposals could be seen as the minimum subsidy needed to give private bus operators an incentive to replace all their pre-Euro IV buses.

Academics and environmentalists said the proposal had merit, but doubted its feasibility.

Clean Air Network chief executive Kwong Sum-yin said she would support such a plan, but realistically it would not happen. "The government and bus companies have a contract to phase out pre-Euro V buses in 18 years and neither side will be willing to breach this contract," she said.

Leung arrived at his figure by calculating the decrease in mortality rate per decrease in air pollutants such as nitrogen dioxide, which is toxic by inhalation, and PM10, fine air particles which can penetrate deep into the lungs.

His work was based on a 2010 study by the Boston-based Health Effects Institute, which found natural-cause mortality in Hong Kong to increase 0.9 and 0.6 per cent respectively for every nitrogen dioxide and PM10 increase of 10 micrograms per cubic metre of air. He used Hospital Authority data, which recorded an average of 39,900 deaths from natural causes between 2008 and 2010.

Seventy per cent of Hong Kong's franchised bus fleet are Euro II buses or lower. Euro II buses alone can emit twice as much nitrogen dioxide and PM10 as Euro V buses, Leung said.

The Hedley Environmental Index estimated there were at least 195 premature deaths and 400,000 doctor visits last month and eight million doctor visits in 2011 as a result of bad air.

Sarah McGhee, a professor of health economics at the University of Hong Kong, said Leung's findings were credible but his plan's feasibility was doubtful because it would require bus firms to find HK\$8 billion on top of the government's HK\$6 billion subsidy to replace non-Euro V buses.