

## Case Study

### Bangkok's strategy to tackle air pollution



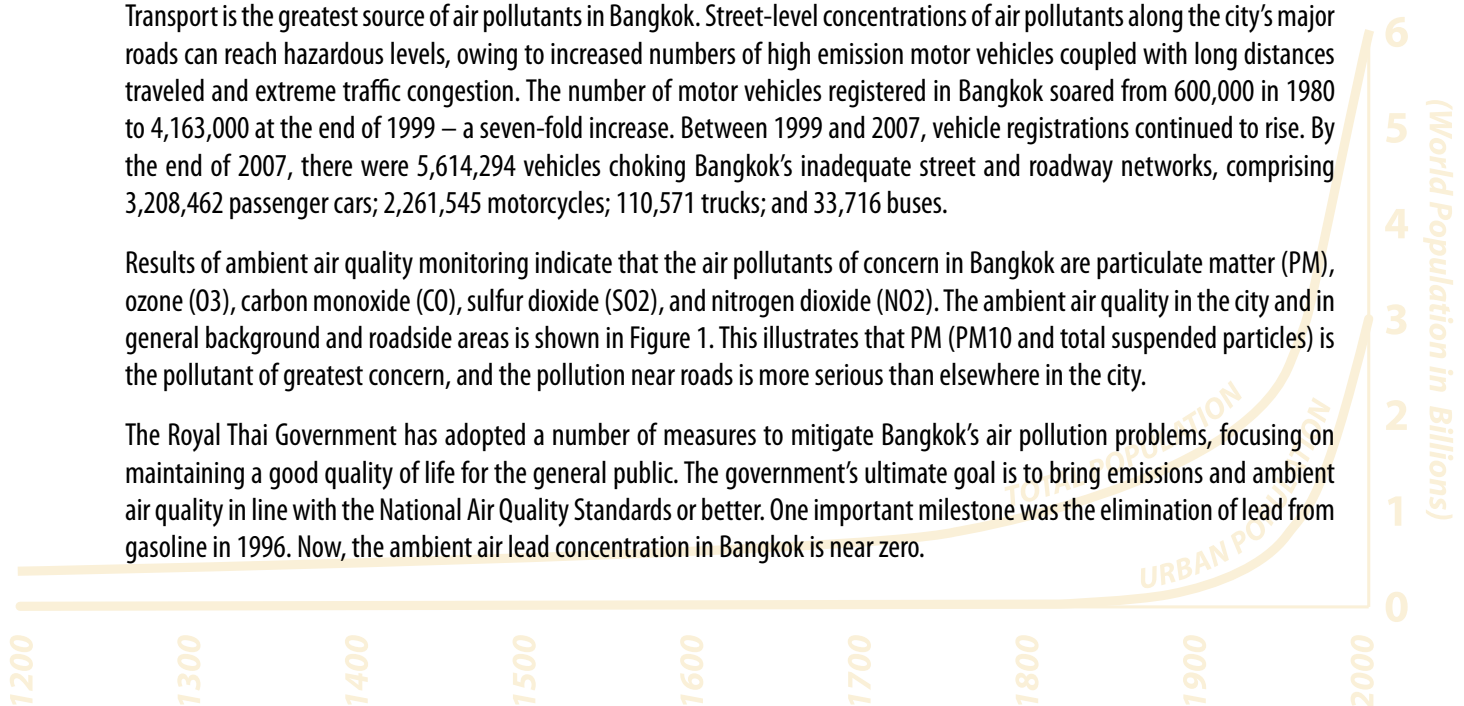
▲ Bangkok's Skytrain.  
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As a consequence of population increase, city development and a growing number of motor vehicles on its roads, Bangkok, the capital of Thailand, has experienced serious air pollution problems over the past several decades. Measures recently adopted by the Thai government, however, have helped the growing city manage its air quality, putting Bangkok on the path to cleaner air and better quality of life for its residents.

Transport is the greatest source of air pollutants in Bangkok. Street-level concentrations of air pollutants along the city's major roads can reach hazardous levels, owing to increased numbers of high emission motor vehicles coupled with long distances traveled and extreme traffic congestion. The number of motor vehicles registered in Bangkok soared from 600,000 in 1980 to 4,163,000 at the end of 1999 – a seven-fold increase. Between 1999 and 2007, vehicle registrations continued to rise. By the end of 2007, there were 5,614,294 vehicles choking Bangkok's inadequate street and roadway networks, comprising 3,208,462 passenger cars; 2,261,545 motorcycles; 110,571 trucks; and 33,716 buses.

Results of ambient air quality monitoring indicate that the air pollutants of concern in Bangkok are particulate matter (PM), ozone (O<sub>3</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>). The ambient air quality in the city and in general background and roadside areas is shown in Figure 1. This illustrates that PM (PM<sub>10</sub> and total suspended particles) is the pollutant of greatest concern, and the pollution near roads is more serious than elsewhere in the city.

The Royal Thai Government has adopted a number of measures to mitigate Bangkok's air pollution problems, focusing on maintaining a good quality of life for the general public. The government's ultimate goal is to bring emissions and ambient air quality in line with the National Air Quality Standards or better. One important milestone was the elimination of lead from gasoline in 1996. Now, the ambient air lead concentration in Bangkok is near zero.

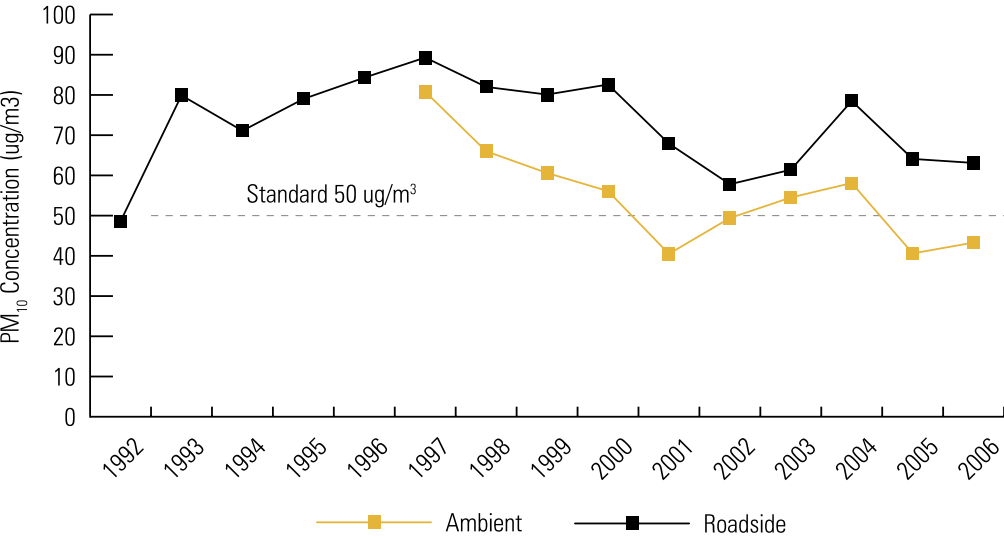


Since the 1990s, the government has facilitated ongoing collaboration among the municipality of Bangkok, various sectors impacting air pollution, and the public, resulting in the adoption of air pollution control strategies for transport-related sources, such as improving fuel quality; enforcing emission standards for new and in-use vehicles; implementing an inspection and maintenance program; reducing vehicle kilometers traveled; and performing roadside inspection, traffic management and gasoline vapor recovery. Air pollution control strategies for stationary sources have also evolved, including requiring environmental impact assessments, enforcing emission standards and fuel oil standards, and implementing monitoring requirements.

To provide transport alternatives and decrease the number of vehicles on the roads, Bangkok developed a new public transport system, featuring a subway line and an above-ground Skytrain, in 2004. The mass-rapid-transit system has helped improve air quality somewhat, but the limited area covered by the system does little to alleviate traffic and curb the city's overall pollution. Bangkok is now working to expand the distance reachable by Skytrain, which will help ensure good air quality even while the population increases.

Thailand has succeeded in mitigating air pollution in Bangkok, but the government continues to conduct research to make use of new knowledge and keep up with rapidly advancing technology. Thailand is disseminating and sharing its experiences in air pollution control with other countries in Asia.

ANNUAL AVERAGE OF PM10 IN BANGKOK DURING 1992 - 2005



Sources: Thailand Department of Land Transport, 2008, with contributions from Pollution Control Department of Thailand and Clean Air Initiative for Asian Cities Centre.