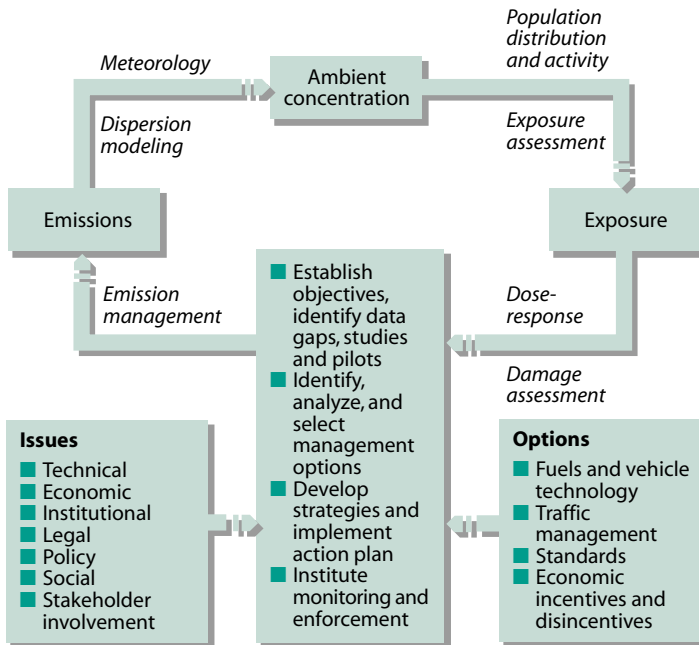


# Integrated strategies to reduce vehicle emissions

In developing strategies to clean up vehicles, there must be a clear understanding of the emission reductions required from all sources to achieve healthy air quality. Depending upon the air quality problem and the vehicle emissions contribution, the degree of control required will differ from location to location. As illustrated in Figure 1, the initial step should be a careful assessment of air quality and the sources that contribute most to the problem or problems.

Where vehicles are the major culprits, a broad-based approach will be needed to formulate and implement policies and actions



**Figure 1**  
**Integrated Air Quality Management Framework**

aimed at reducing their pollution. The following groups of stakeholders will each have an important role in the development of appropriate policies and strategies:

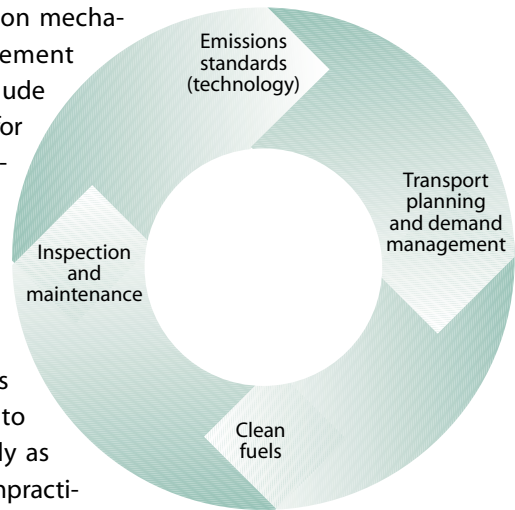
- National government agencies;
- Local government agencies;
- Industry (including vehicle producers, fuel producers, catalyst suppliers, maintenance industry and others);
- Intermediate groups which can help advocate for and implement pollution reduction campaigns;
- End users. Within this group it is important to differentiate between user groups such as rickshaw drivers who depend on the affected vehicles for a living, and users who require vehicles for personal transportation; and
- Breathers.

**Where compressed natural gas (CNG) is readily available in a given locality, and where very low-sulfur diesel (50 ppm or less) is not readily or reliably available, strong consideration should be given to replacing diesel buses with CNG buses**

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Effective and efficient coordination mechanisms for vehicle pollution management must be established. These should include the clear allocation of responsibilities for specific functions and tasks to individual agencies and organizations.

Reducing vehicle pollution usually requires a comprehensive strategy. Generally, the goal of a motor vehicle pollution control program is to reduce emissions from in-use motor vehicles to the degree reasonably necessary to achieve healthy air quality as rapidly as possible. Failing that for reasons of impracticality, the goal is to meet the practical limits of effective technological, economic, and social feasibility. A comprehensive strategy to achieve such goals includes four key components: (i) increasingly stringent emissions standards for new vehicles, (ii) specifications for clean fuels, (iii) programs to assure proper maintenance of in-use vehicles, and (iv) transportation planning and demand management. These emission reduction goals should be achieved in the most cost-effective manner available. Figure 2 illustrates these four key components of a comprehensive vehicle pollution control strategy.



**Figure 2**  
**Elements of a**  
**comprehensive**  
**vehicle pollution**  
**control strategy**