B.3 MOBILE SOURCES

B.3.1 Description of Sector

In the transportation sector gasoline and diesel-powered road vehicles account for about 70% of NO_x emissions while a further 20% comes from non-highway applications of gasoline and diesel engines. Thus, with federal design emission standards in both countries for such vehicles (and/or engines), over 90% of the NO_x emission inventory is already subject to controls of varying stringency at the new vehicle/engine level.

Emissions of SO_x from mobile sources are negligible (about 1.5% of man-made emissions).

B.3.2 CONTROL TECHNOLOGIES

B.3.2.1 United States - New Vehicles

In the United States, tailpipe emission standards are in effect for a variety of light- and heavy-duty vehicles, including motorcycles and airplanes.

In examining emissions of any pollutant from road vehicles one can divide the subject neatly into two parts: the design performance of vehicles, usually covered under new vehicle/engine emission regulations, and the actual emissions performance of vehicles in consumers' hands, including both the amount and kind of use each vehicle sees.

B.3.2.1.1 Light-Duty Vehicles

Current emission standards are in effect for light-duty vehicles (LDV's) which require a 90% reduction in hydrocarbons (HC) and carbon monoxide (CO), and a 75% reduction in nitrogen oxides (NO_x) as compared to 1970 model passenger cars.

There have been a series of emission control devices on passenger cars since the 1960's; however, beginning with the 1972 production models, emission control devices began to bring about significant reductions in air pollutants. In 1975, the catalytic converter was introduced on a large scale and has since become the primary system for controlling HC and CO. The technology for meeting the current automobile emission standards employs the catalyst technology coupled with a series of electronic and vacuum sensing devices which detect and control selected engine operating parameters. A so-called three-way catalyst (incorporating NO_x reduction as well) is being used on many of the 1980 production cars.