

1.6 ROAD ECOLOGY

Road ecology is the study of the ecological impacts (both positive and negative) of roads and highways (public roads). It include local effects, such as on noise, water pollution, habitat destruction/disturbance and local air quality; and wider effects such as habitat fragmentation, ecosystem degradation, and climate change from vehicle emissions.

- ✓ The design, construction and management of roads, parking and other related facilities as well as the design and regulation of vehicles can change the impacts to varying degrees.
- ✓ Roads are known to cause significant damage to forests, prairies, streams and wetlands.
- ✓ Roads are a form of linear infrastructure intrusion that has some effects similar to infrastructure such as railroads, power lines, and canals, particularly in tropical forests.
- ✓ Air pollution from fossil (and some biofuel) powered vehicles can occur wherever vehicles are used and are of particular concern in congested city street conditions and other low speed circumstances.
- ✓ Emissions include particulate emissions from diesel engines, NO_x, volatile organic compounds, CO and various other hazardous air pollutants including benzene.
- ✓ Concentrations of air pollutants and adverse respiratory health effects are greater near the road than at some distance away from the road.
- ✓ Road dust kicked up by vehicles may trigger allergic reactions.
- ✓ CO₂ is non-toxic to humans but is a major greenhouse gas and motor vehicle emissions are an important contributor to the growth of CO₂ concentrations in the atmosphere and therefore to global warming.

Positive Impacts

- ✓ The construction of new roads which divert traffic from built-up areas can deliver improved air quality to the areas relieved of a significant amount of traffic.
- ✓ The *Environmental and Social Impact Assessment Study* carried out for the development of the Tirana Outer Ring Road estimated that it would result in improved air quality in Tirana city center.
- ✓ A new section of road being built near Hindhead, UK, to replace a four-mile section of the A3 road, and which includes the new Hindhead Tunnel, is expected by the government to deliver huge environmental benefits to the area including the removal of daily congestion, the elimination of air pollution in Hind head caused by the congestion, and the removal of an existing road which crosses the environmentally sensitive Devil's Punchbowl area of outstanding natural beauty.

