

Air Quality

The nature of Air Quality

If you live in the Hunter Valley of NSW you will be aware of the fierce controversy over air quality and open-cut coalmines. Many people who live in the area are concerned that the coal dust from the mines is affecting their health and is responsible for what they see as an increase in a wide range of medical conditions. They argue this issue affects their quality of life. On the other hand, people argue the mines are important because they are providing jobs and income for the whole Australian community.

The state of air quality is mainly an urban issue simply because most Australians live in an urban coastal strip between the sea and the mountains, and the polluted air is caught in what is called an 'air shed'. However, poor air quality is also a concern to many Australians who live in rural areas. The main causes of air pollution in rural areas are bushfires, droughts and windstorms. In 2009, for example, several windstorms were so strong that large amounts of soil originating in central Australia were blown across NSW, past Sydney and out to the ocean.

Generally, however, the major sources of air pollution in Australia are transport, industrial, commercial and residential activities. Vehicle emissions are by far the largest source of air pollution and present the greatest challenge. Cars contribute some 45–50 million tonnes a year of carbon dioxide or equivalent greenhouse gases and this is about 8% of Australia's total emissions. Even residential activities, including such things as backyard burning of rubbish and powered gardening equipment, are important simply because they happen so frequently.

The impact of Air Quality

Poor air quality impacts mainly on people's health. It is responsible for a number of respiratory conditions. These include health problems such as asthma, headaches, bronchitis and eye irritations. Indeed some 400 people (usually with pre-existing health problems) die from air pollution each year and some 1000 are admitted to hospital each year.

The most significant impact of poor air quality is on the elderly, the very young and people with pre-existing problems such as asthma. Other concerns to the human population include an increase in the incidence of cancer, birth defects, genetic damage, central nervous system defects, immunodeficiency, and disorders of the respiratory and nervous systems.

It is difficult to get accurate data on the cost of air quality to the national economy. These costs include not only the health costs in treating affected people, but also the lost productivity when people are sick because of poor air quality.



Fig 1.7 Dust storms sweeping across NSW are a huge source of air pollution.



Fig 1.8 Bushfires are a major source of air pollution in both rural and urban areas.

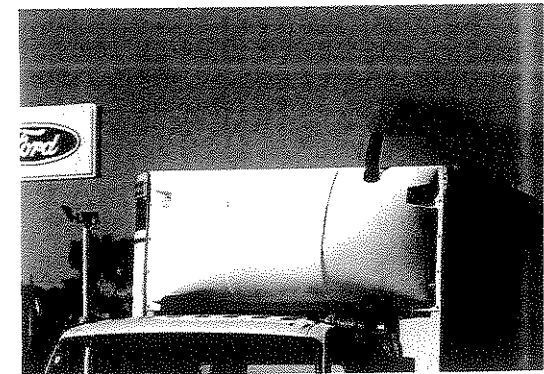


Fig 1.9 Vehicle emissions are the largest source of air pollution.

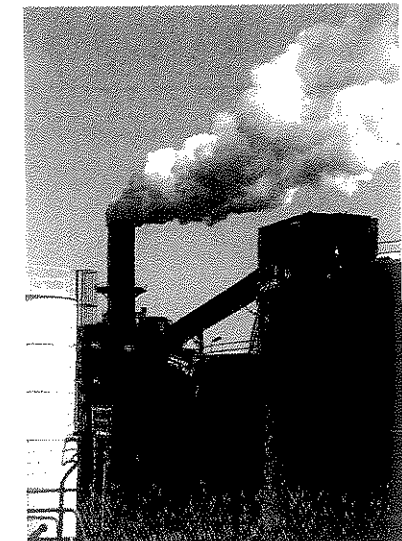


Fig 1.10 Factory smoke emissions.

DID YOU KNOW

Did you know that we spend 90% of our time inside buildings that are often poorly ventilated? It is estimated that the cost of poor ventilation could be as high as \$12 billion. The costs consist of things like the treatment of lung ailments such as asthma as well as the need to air-condition buildings. Better designed buildings could greatly reduce these costs by more effectively using the outside air.

Exceedences for particle emissions for the Sydney region from 2004–2009

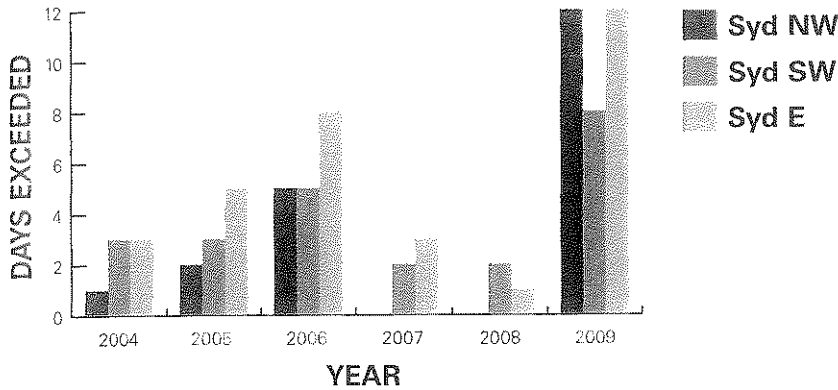


Fig 1.11 Number of days in the year that PM10 (particles less than 10 micrometers in diameter) exceeded the standard or goals set by the National Environment Protection Measure.

These dust and smoke particles in the air result from: mining; burning of fossil fuels; transportation; agricultural and hazard reduction burning; the use of incinerators; and the use of solid fuel for cooking and heating.

While larger particles are usually trapped in the nose and throat and swallowed, the smaller particles may reach the lungs and cause irritation in the airways. This is especially a problem for people with existing respiratory diseases such as asthma and chronic bronchitis.

The responses by individuals, groups and governments to the issue of Air Quality

As with most issues, **individuals** respond differently. Many individuals accept a high degree of responsibility for their actions and take measures on a daily basis to reduce their own impact on air pollution. Typically these actions include things like: making informed decisions when purchasing goods like cars and garden equipment; using public transport, bicycles or walking where possible; and minimising the heating and cooling of their house with insulation.

Response: how different people and groups react to the issue in terms of what they do to deal with the situation.

Environmental **groups** have developed a strong response to the issue of air quality. These groups lobby the different levels of government to implement measures such as bicycle tracks, improved roads and the upgrading of public transport. Lobbying by the Greens Political Party, for example, was able to achieve \$60 million under the Nation Building Stimulus package for the construction of bicycle tracks. Forming an action group is usually more effective than individual action because the various levels of government are more likely to respond to group lobbying.

Lobby: trying to influence a decision or sway an opinion by persuading a politician or influential person to support or fight a particular cause (writing letters, petitions etc.).

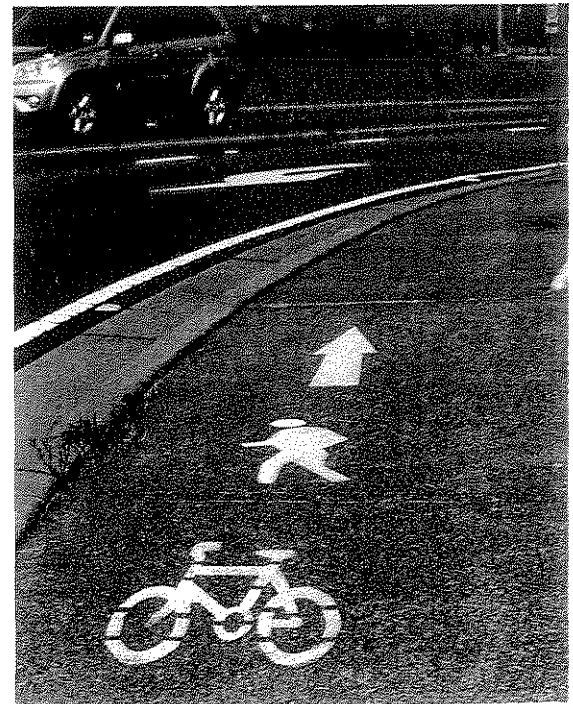


Fig 1.12 Bicycle tracks built near main roads.

Most **local governments** have developed air quality management plans. There is a great deal of variation in the plans, but typically they include things like air quality monitoring stations and action to encourage the replacement of wood burning heaters. Some local governments have comprehensive education plans to inform residents of how they can individually contribute to an improvement in air quality. Blacktown City Council actually distributes energy efficiency packs with low-energy light bulbs to all its ratepayers, and assists ratepayers to adopt solar panel hot water heating.

The **NSW Government** has a 25-year air quality management plan that is implemented through the Department of Environment, Climate Change and Water. The focus of this plan is on 'reducing harmful emissions to air, land and water' and 'reducing the exposure of the community and the environment to chemicals, radiation, noise, dust, waste, odour and vibration'.

WEB

Visit www.environment.nsw.gov.au. Research what the NSW Government is doing in its 25-year plan. Jot down some of the things you think will be most effective and possibly an action with which you disagree.

The **Australian Government** sets the standards for air quality and develops national strategies to manage air toxins. The Australian Government has established a national database to monitor the air for pollutants and set national benchmarks for pollutants that cause the greatest harm to humans and the environment. The Australian Government has also introduced many restrictions within industries where pollutants are likely to be emitted.

The Australian Government's main focus is on the transport industry. The Australian Government wants to improve acceptable standards for car emissions and fuel quality. Another aim is to reduce traffic by improving roads, developing bus lanes, improving public transport, and building freeways and tunnels. Encouraging the use of public transport, car-pooling, walking and the use of bicycles by funding bicycle tracks also improves air quality.

ACTIVITY

- Visit the Department of Environment, Climate Change and Water website <http://www.environment.nsw.gov.au/AQMS/aqi.htm> to identify the location of air quality testing sites for NSW.
 - Go to <http://www.environment.nsw.gov.au/aqms/aqimonthlygraph.htm>. Click on the graph for the region that is closest to your school for the monthly readings. Using the scale at the top of the page, **outline** the trends that are evident in this graph.
 - Search the website for the daily pollution readings for today and yesterday. Would you expect there to be a change on days of the week or in different seasons?
- Put an action plan together on what you can do to improve conditions in your area.

Outline: indicate the main features of.

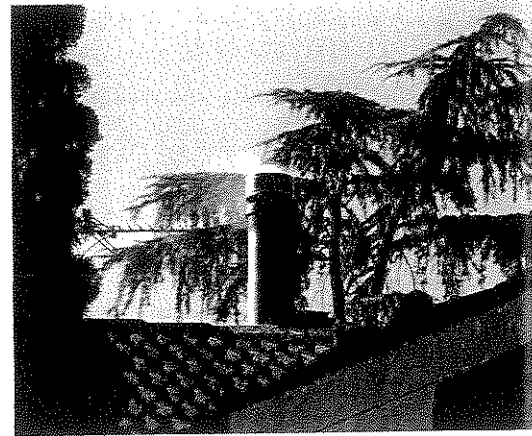


Fig 1.13 Chimney smoke from log fires is a major contributor to poor air quality.

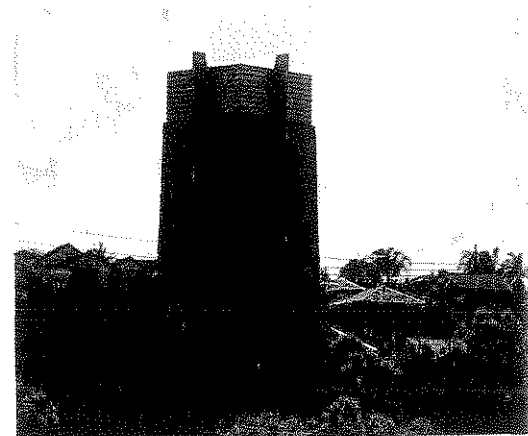


Fig 1.14 Air fumes from the M5 tunnel are released from this chimney in the suburbs.



Fig 1.15 Transit ways encourage people to car-pool, which reduces the number of cars on the road.

