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Environmental Health Indicators For New Zealand

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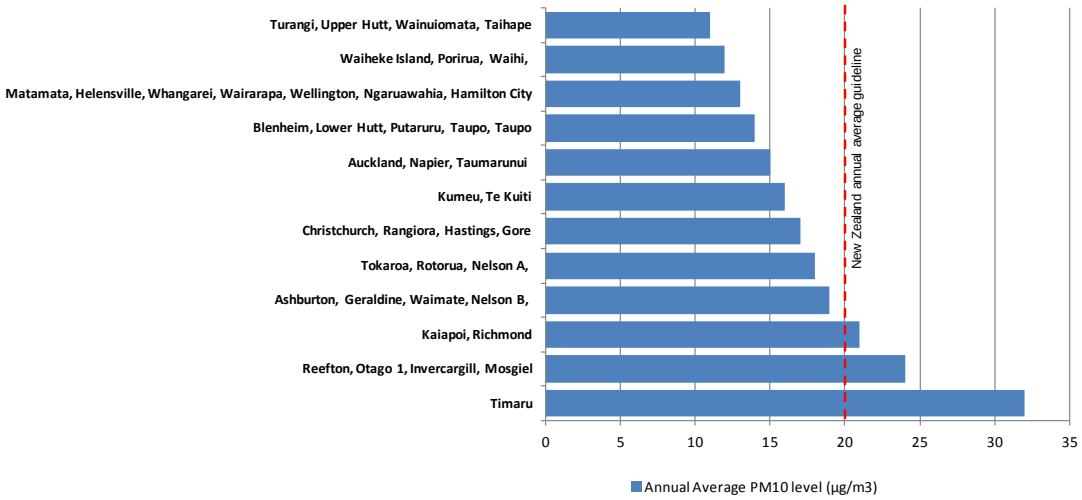
PARTICULATE MATTER (PM_{10}) – ANNUAL AVERAGE

Particulate matter with a diameter of less than 10 micrometres (PM_{10}) can penetrate far into the human lung., and short-term and long-term exposures to PM_{10} have predominantly been associated with the exacerbation of respiratory and cardiovascular conditions (WHO 2006a). Most poor air quality in New Zealand is caused by high winter levels of PM_{10} from coal and wood used in home heating (Ministry for the Environment 2010a). Additionally Auckland also experiences high levels of PM_{10} from road transport (Ministry for the Environment 2007). Particulates are also produced from atmospheric reactions of other compounds such as SO2 and nitrogen oxides (Cromar et al 2004), as well as natural sources such as dust, pollen, ash, sea salt and soil particles (Fisher et al 2007). The following update from the EHI monitoring project presents data on the annual average PM_{10} levels recorded in 2010 at each of the 40 monitored airsheds in New Zealand. The average annual concentration of PM_{10} allowed under the ambient air quality guidelines is 20 $\mu g/m^3$, exceedance of which is used as an indication of long-term exposure levels.

Figure 1
ANNUAL AVERAGE PM_{10}, LEVELS IN AIRSHEDS, 2010



Note: The broken line represents the maximum number of exceedance days (one day per year) allowed under the National Environmental Standards for Air Quality which is consistent with the WHO guidelines.
Source: Ministry for the Environment ; J Fyfe, Personal communication, 29th September 2011

Annual Average

Current situation – 2009 REPORT DATA - CHANGE

Figure 1 presents the average annual PM_{10} levels in 2010 for 40 of the 44 monitored airsheds that were able to monitor an annual average for PM_{10}. The annual guideline level of 20 $\mu g/m^3$ was not exceeded in any North Island Airsheds and exceeded in 7 airsheds in the South Island (Kaiapoi (21 $\mu g/m^3$), Richmond (21 $\mu g/m^3$), Reefton (23 $\mu g/m^3$), Otago 1 (24 $\mu g/m^3$), Invercargill (24 $\mu g/m^3$), Mosgiel (25 $\mu g/m^3$), and Timaru (32 $\mu g/m^3$), amounting to 2 less airsheds than in 2009 and 5 less than in 2008.

References

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