Playing with ‘The Public Health’

When it comes to determining public policy, the Director for Environmental Protection and the acting Director of Public Health state that governments must adopt the ‘weight of evidence’ approach.\(^1\) This method would presumably weigh positive effects, negative effects and potential effects. The likelihood of each of them and their significance are important. If a factor has serious impact and the evidence in relationship to it is strong then the justification for taking action is also stronger. Even so, Karl Popper suggested that because of the uncertainties inherent in broad public policy it is better to make changes incrementally rather than by heroic actions.

He was particularly concerned about unexpected outcomes which could make conditions worse as a result of government action.

We have such a situation in relation to air pollution in New Zealand. Several papers in this journal\(^2\)–\(^4\) have raised questions about the government's assessment of the risk from PM\(_{10}\). The response from the government has been to produce an expensive document “The National Air Quality Compliance Strategy to Meet the PM\(_{10}\) Standard”\(^5\) and a users’ guide\(^6\). These set out the requirements which must be met by regional councils. They include: Prohibition of new solid-fuel open fires from September 2012, replacement of older wood burners, monitoring of ambient PM\(_{10}\) by councils, council controls to prevent breaches of the PM\(_{10}\) standard, annual compliance reviews by the Ministry for the Environment, possible intervention by the Minister.

The fundamental objection to the Ministry’s regulations is their assertion that PM\(_{10}\) is the main agent in the increase in deaths in the winter. In this, the Ministry confuses association with causation. By contrast, the U.S. Environmental Protection Agency (E.P.A.) in 2006 revoked an annual PM\(_{10}\) standard\(^7\) due to the “lack of evidence linking health problems to long-term exposure to coarse particle pollution (PM\(_{10}\))”. It has retained a 24-hour standard of 150 \(\mu g/m^3\). This level, three times the New Zealand standard, should not be exceeded more than once per year, on average, over 3 years.

The E.P.A. is more concerned about PM\(_{2.5}\). These fine particles which may form in the atmosphere from ozone, oxides of nitrogen, sulphur dioxide, volatile hydrocarbons, oxygen and water, by photochemical reactions, can gain access to the small airways in the lung. The significant pathogenicity of these substances is well accepted. They arise from motor vehicle exhausts, the burning of coal and oil, and industrial pollutants.

Why has the New Zealand Government taken such an extreme view over PM\(_{10}\) when the E.P.A. has largely discarded it as a relevant measure? The Ministry for the Environment has stated “air-pollution from all sources is estimated to cause more than 1600 premature deaths, 930 hospitalisations and 2.6 million restricted activity days in urban areas in New Zealand every year. The majority of these health effects are from PM\(_{10}\) emissions.”\(^5\) These claims are a misuse of the statistics.\(^2\)\(^3\)
The Minister stated in his foreword: “The challenge for government-both local and central—is how to COMPEL people to take action to improve the quality of their air.” So we have a theory and measure which the U.S. has discarded, bolstered by faulty statistics, with a threat of compulsion to comply. As well as this, in their response to the air pollution articles in the NZMJ, Currie and Hunt suggested that the articles “offer unsubstantiated criticism of the government's national environmental standards for air quality” and should have first been submitted to either the Ministry for the Environment or the Ministry of Health “to ensure an objective assessment and avoid obvious errors which might mislead the reader”!

Hoare and Palmer have assessed the methodology and statistical analyses used in studies of PM$_{10}$ for some years and through submissions to the administrators, to various Ministry-initiated enquiries, to the local regional Council, and to elected representatives, have tried to persuade the Ministry to review its stance. Their efforts have resulted in no perceptible change in the Ministry's position. Given the authoritarian attitudes exhibited in the above paragraph this is not surprising. The situation raises doubts about the propriety of public consultations in relation to air pollution over the last few years. None of this speaks well for ‘The Open Society’ in New Zealand.

The PM$_{10}$ programme is a waste of money for individuals, ratepayers and the taxpayer. As it is based on a flawed assumption it results in a false direction to air pollution activities. As well as this, it steps beyond control of a proposed environmental pollutant into the field of social engineering by interfering in the private life of individuals and their friends in their own homes. A civil authority should not do this without overwhelming justification.

We were warned in 2005 by the electricity provider that the programme would lead to an increase in the cost of electricity because of the need for increased generation and line capacity. Because of a high prevalence of fuel poverty in the South Island (spending more than 10% of disposable income on heating) this could have disastrous repercussions. Furthermore, this consequence was clearly forecast and was not unforeseen. Did the Ministry for the Environment take it into consideration? During the Christchurch earthquake the weather, fortunately, was mild. If it had not been, given the shift from wood-burning to electricity or gas dictated by Environment Canterbury, the Hospital could have been inundated with elderly people and infants with chest infections. A warning about the continuing risk to electricity security has come from the Institute of Professional Engineers giving further concern over the shift to electricity for domestic heating.

In New Zealand, increased mortality in the winter is one of the worst in the world. The most plausible reason for this, biologically, is exposure to the cold resulting in viral and then bacterial chest infections. It can also trigger myocardial infarction in the susceptible. It is known that average temperatures in our houses are well below the World Health Organization-recommended minimum of 18°C. We need to keep our houses warmer without adding to pathogenic air-pollution or adding to carbon emissions. Given the limitations on other renewable sources, the burning of dry wood fills this role, is affordable and provides a secure heating if the electricity supply fails.

As Howden-Chapman et al have pointed out we need to take a broader view of the factors that influence our air quality and health. Better insulation of housing is very
important and the Ministry for the Environment has taken an effective lead in this. The issues surrounding which sources of energy to use for domestic heating need urgent reappraisal. Because the chemicals SO\textsubscript{2}, NO\textsubscript{2}, O\textsubscript{3} and volatile hydrocarbons are so important, transport planning and the location of industry and control of its effluents are critical.

The National Air Quality Compliance Strategy to Meet the PM\textsubscript{10} Standard should be suspended. The administrators who developed this strategy should explain why they have continued to incriminate PM\textsubscript{10} as the cause of excess deaths in the winter, when the data only show an association, and the U.S. E.P.A. has discarded the theory. They would also need to refute the papers which point out that it is a misuse of the statistics to attribute specific numbers of deaths to PM\textsubscript{10}.

A group with a broader perspective now needs to examine the issues. Any proposed action or regulation should be judged on its potential to enhance clean air, security of domestic heating, and affordability by individuals, ratepayers, taxpayers and industry. In the longer term, the implications for town planning, transport planning and provision, and industrial development are most important. Whilst the benefits of some initiatives may take time to become manifest, the detection of any unexpected outcome demands on-going monitoring from the beginning. The issues are complex and have broad implications for the future of our cities.

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References: