

I wish to comment on the health impacts resulting from the lack of control of wood smoke from wood heaters in Australia, in NSW in particular. My concern is that wood smoke pollution is a serious health problem that has not been sufficiently addressed to date. It affects me personally by exacerbating my asthma, even when I am indoors in my home which I seal to the best of my ability in an effort to keep wood smoke out. I am also very concerned about the deleterious effects on the health of the community, especially the very young, the aged and those in poor health.

I live in Armidale, NSW, and have been a Community Representative on the Council committee responsible for wood smoke control since it was established. The local Council has for many years endeavoured to address the problem but has been hamstrung by a lack of funds and the lack of a suitable legislative framework. Council sought legal advice on whether or not they had the power to ban the installation of new wood heaters and were told that they did not. Consequently wood heaters are being installed in new housing developments. No wonder that Council's (largely token) efforts to control wood smoke pollution have had little or no effect.

Scientific studies are regularly published linking fine particles and the chemicals found in wood smoke with asthma, bronchitis, emphysema, cancer, heart disease and reduced life span in humans. Recent research has linked the PAHs found in wood smoke to genetic damage in babies and to behavioural problems and reduced IQ in children. Even the inhalation of chemically inert fine particles is hazardous to health.

In country towns wood smoke is responsible for the vast majority of air pollution. Fortunately this is seasonal although in towns like Armidale the cool season is comparatively severe and extends for a relatively long part of the year. Armidale's wood smoke pollution problem is exacerbated by its unfortunate geography. It is situated in a valley surrounded by hills and so is particularly susceptible to temperature inversions that trap wood smoke pollution in the city on cold, calm nights.

My home is situated high on the south-west outskirts of the Armidale built-up area, above the majority of the city which is in the basin and consequently experiences the worst wood smoke pollution. Nevertheless my property is exposed to severe wood smoke pollution for upwards of six months of the year because there are a number of homes with wood heaters upslope and others in the direction of the prevailing winds. One of our immediate neighbours has been bathing us in wood smoke for 10 years, despite having been reported to the Council numerous times each year.

I seal my front door and another main door and forego using them for half of the year in order to block these wood smoke entry points. I temporarily seal another door every night. However only hermetically sealing a home will keep wood smoke out completely. Obviously this is not practicable. The best one can do is to try to seal major entry points.

Since approximately half the homes in Armidale use wood heaters, there is a lot of wood smoke pollution in Armidale in the cool months. Also, there are occasional cold snaps during the warmer months which result in people relighting their wood heaters. We have even experienced wood smoke pollution in our home on a very warm day at the end of November, caused by a smouldering wood heater 50 metres away.

In my immediate neighbourhood we can only reliably expect to be free of wood smoke for about three months of the year. In older parts of Armidale there are still some households which burn wood for cooking and for heating water and consequently pollute all year round.

Whenever there is wood smoke in the air it will penetrate into even the best sealed home. So there may be dangerous levels of wood smoke in a home even when there is no wood heater in use nearby and no smoke detectable by smell. It is therefore imperative to reduce the amount of wood smoke in the air. Otherwise the whole community is breathing air containing elevated levels of fine particles, also containing dangerous chemicals, for very significant periods during the cooler months of the year.

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A large part of the problem stems from the fact that wood heaters are rarely operated at their rated emission level (which is a theoretical minimum obtained from a laboratory test where all parameters are ideal - i.e., in a completely unrealistic situation). Numerous factors effect wood smoke emissions from a wood heater. For example, there are right and wrong ways of placing wood in the wood heater, starting the fire, etc. The flue must also be kept clean. Firewood must be of good quality, dry and seasoned. It must be stored under cover, off the ground, and stacked so that air can circulate through the woodpile. Getting the details of any of the above wrong can result in significantly increased wood smoke emissions from that wood heater.

In overseas communities with similar wood smoke problems to ours, they have found that the only solution is to ban wood heaters, including the latest "low pollution" models. Pending the banning of wood heaters we should ensure that wood heaters are operated correctly. If we can achieve this we will make a significant reduction in our air pollution.

However, even when operated correctly, even the latest models of wood heaters cause significant pollution. Therefore all wood heaters must be replaced with non-polluting alternatives over the medium to long term. As a first step we should ban the installation of any new wood heaters.

The responsibility for controlling wood smoke emissions (the major contributor to air pollution in much of rural Australia) should not be left primarily in the hands of local government. Local government has a long and continuing history of vacillation on this subject, perhaps partly due to conflicts of interest, lack of expertise, lack of funds, etc.

In Armidale many years of sporadic and unprofessional "education" of the public has resulted in insignificant changes in the knowledge of the public. For example, the *Armidale Woodsmoke Report 2003* carried out by Malte Nachreiner and Dr Don Hine of the School of Psychology at the University of New England revealed that 47% of Armidale's population still believe that wood smoke does not adversely affect their health.

Air quality was first raised as a significant issue at a public meeting held in 1994 to introduce Armidale City Council's first State of the Environment (SOE) Report. Air Quality Monitoring and public education commenced in 1995. To date there has been little change in air pollution levels.

Education on the hazards of wood smoke pollution needs to be properly funded and carried out professionally. The same applies to the regulation of wood heater operation. There need to be clearly set out guidelines on what is and what is not permissible in the way of wood smoke emissions. Additionally, sufficient grounds for penalties to be imposed on polluters must be stipulated, and these regulations must be enforced.

The state governments should fund professional press, radio and television education campaigns that will once and for all educate the public on the dangers of wood smoke pollution. Local government has been ineffectual in this regard.

Armidale Dumaresq Council has not publicised a complaint line for people to report smoky chimneys. It also finds it difficult to fund smoke patrols, especially out of business hours. Since most wood smoke pollution is generated in the hours of darkness, the rare Council smoke patrols are ineffective in identifying and deterring the main polluters, in particular those householders who leave their wood heaters smouldering (and polluting) all night.

To my knowledge the Council has not issued a single smoke abatement notice despite the same wood heaters being identified as pouring out vast plumes of smoke every year. As previously stated, legal advice to Council was that the legislation did not allow them to ban wood heaters and that they might be sued if they did.

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This is all the more reason for the state governments to take a more prominent role on this issue, especially in educating the public on the dangerous health effects of wood smoke and enforcement of penalties for wood smoke pollution.

The Council has a detailed policy for dealing with wood smoke pollution. However much more time and effort was spent on developing the policy than has been spent on controlling wood smoke. The perennial excuse for not investigating smoky chimneys and conducting wood smoke patrols is lack of funds and staff time. However my experience, after a decade of service on the Council's Domestic Energy Committee, is that it is of very low priority to the busy Council officers.

If left to the local Council, parochial political considerations will override the vastly more important health concerns. Elected councillors have consistently rejected taking any of the strong actions to discourage the use of wood heaters that have been proposed to them by the Domestic Energy Committee. Subsidies for replacing wood heaters with other forms of heating have had no effect in reducing wood smoke pollution levels in Armidale. This is not surprising given that people are still permitted to install new wood heaters.

## Recommendations

The **Australian government** should do the following:

1. Legislate stricter limits on wood heater emissions in line with those already in place in New Zealand.
2. Establish an independent, national authority to be responsible for testing wood heater emissions and certifying their compliance with the Australian standard.  
In lieu of establishing a new authority, the government must mandate that these tasks are carried out by a reputable, indisputably independent organisation such as the CSIRO.

The testing authority should be required to test wood heater emissions in real world situations, not in artificial laboratory tests where all parameters may be controlled to give unrealistic results.

(Currently we have the farcical situation where the organisation responsible for promoting wood heater sales also does the testing of them.)

3. Establish a program leading to:
  - a. A ban on the installation of new wood heaters (that is, where they are not replacing an existing one);
  - b. A framework for replacement of all installed wood heaters with environmentally-friendly and energy-efficient alternatives.
4. Publicise the harmful health effects of wood smoke.
5. Promote the replacement of wood heaters with environmentally-friendly and energy-efficient alternatives.
6. End the current situation where the Australian Home Heater Association has the power to veto the introduction of more stringent controls on wood heaters and their emissions.

**State and territory governments** should:

1. Monitor wood smoke emissions throughout their state or territory. Based on this monitoring:
  - a. Allocate resources on a needs basis (greater resources allocated to the localities with the greatest problem).
  - b. Set the wood smoke controls to apply in each local government area or part thereof.
2. Enforce wood smoke emission limits.
3. Issue "Don't light tonight" radio and television advisory notices to areas which are forecast to have a high probability of adverse weather conditions leading to high wood smoke pollution levels. (That is, advertisements with the message to not light wood heaters that night.)
4. Fund local authorities adequately to carry out any of the above duties which they have been given responsibility for.

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The **three tiers of government (federal, state and local)** should decide which one or more of them has the responsibility for each of the following items and then carry out each of:

1. Fund professional education programs utilising all media to educate the public on the health effects of wood smoke and the proper operation of wood heaters, to encourage the use of alternative methods of heating, etc.
2. Establish and publicise a Wood Smoke Pollution line (or lines) that the public can telephone to report excessively smoking chimneys.
3. Phase out wood heaters within, say, 10 years. (That is, after 10 years it will become illegal to use one.)
4. Pending the banning of wood heaters, annual license fees should be levied on households which wish to continue to operate wood heaters. I suggest a sliding scale so that the license fees are increased each year as an incentive for the owner to replace the wood heater with an alternative heating source. The license fees should be substantial (e.g. \$500 in the first year, increasing by \$100 a year).
5. Installation of all new wood heaters is to be banned.
6. It should be a requirement that wood heaters are removed when houses are sold.
7. The relevant state or local government authority should have the power to ban the emission of visible wood smoke during weather conditions conducive to high wood smoke pollution (e.g. on calm, clear nights in areas prone to temperature inversions). Substantial fines should be imposed on those who ignore the ban.
8. That a state authority decides what level of control of wood smoke is to apply in each area or part thereof.
9. Wood smoke control options 2, 3 and 6 should be mandated in localities like Armidale.
10. There should be a legislated plan for removal of all solid fuel combustion heaters, such as wood heaters and open fireplaces, from localities like Armidale by a certain date, say 2025.