

## Comments by *Cycle-Safe*, the Armidale Cyclists and Cycleway users' Association and the Armidale Air Quality Group on Sustainable Cities 2025

Thank you for the opportunity to comment on this interesting and useful initiative. Dr Tim Flannery pointed out that non-sustainability can be thought of as '*Future Eating*' - taking more from the environment than we put back and so depriving future generations of important resources. We hope that this inquiry will not only find mechanisms to promote sustainable cities, but identify mechanisms to promote sustainable development everywhere, in cities, in rural areas, in agriculture, industry and transport. In other words, identify the mechanisms that currently promote development that is unsustainable, and instead develop policies to counter non-sustainability and '*Future Eating*' whenever it occurs.

### 1 Mechanisms to promote sustainability

Issue 5 of the Inquiry was to find "*Mechanisms for the Commonwealth to bring about urban development reform and promote ecologically sustainable patterns of settlement.*" Currently, developments may be subject to Environmental Impact Statements (EIS). Perhaps the easiest way to bring about ecologically sustainable development is to include the cost of Future Eating, and all other environmental issues, in EIS. Research should therefore be commissioned to provide guidelines on how to incorporate the cost of greenhouse gas emissions, air pollution, noise and other environmental damage into an overall cost of development.

#### 1.1 Future Eating Assessments

If development are to be truly sustainable, EIS, or Future Eating Assessments (**FEA**), should be provided for all developments, including transport and agriculture *and* changes in Government policy. FEA for new road proposals should consider whether the construction will encourage people to drive cars more, and if so, how much the additional air pollution and greenhouse gas emissions will cost.

#### 1.2 "Polluter pays" principle

The best ways to encourage sustainable development is embrace the "*polluter pays*" principle. The cost of pollution, waste disposal and greenhouse gas emissions should be incorporated into the cost of each activity. There has been some limited discussion of these issues in Australia.

#### Greenhouse gas emissions

For example, a decade ago, in a report "Energy and Road Transport" the Department of Primary Industries and Energy recommended incorporating registration and insurance charges in the price of fuel. Similar recommendations were made by last year by The Australia Institute.<sup>[1]</sup> To protect the environment, we should "*Promote fuel efficiency through graduated stamp duty on new vehicles and graduated registration fees that reward fuel-efficient vehicles. In addition, introduce pay-by-kilometre third party insurance and registration charges. The changes could be revenue neutral.*"<sup>[1]</sup> The authors explained that "*It is important to note that where an additional charge, tax or levy is recommended, it is proposed that in most cases these form part of a package in which any additional revenue is recycled to protect those most disadvantaged by the policy by removing regressive taxes and charges or providing rebates.*"

Introducing the "*polluter pays*" for greenhouse gas emissions from road transport is not expected to disadvantage the poor. In fact, they may find it advantageous to pay per km for registration and insurance charges, rather than be faced with a \$500 bill payable on the registration date, before car can be used again.

#### Air Pollution

The "*polluter pays*" principle should apply to air pollution, as well as greenhouse gas emissions. The National Environment Protection Council (NEPC) recently set a standard for fine particles known as PM2.5. The Impact Statement<sup>[2]</sup> estimated that 3222 Australians die prematurely every year from PM2.5 pollution (see table 5.4). In terms of morbidity and mortality, PM2.5 therefore cause far more adverse health effects than all other air pollutants put together and are now considered the most dangerous form of air pollution. PM2.5 arise mainly from non-natural causes such as combustion; they are so small, less than 2.5 microns (millionths of a metre) in diameter that they bypass the body's defences. A review in the New Scientist<sup>[3]</sup> explains that large particles are filtered out by the nose. Medium size particles deposited in the airways are trapped on a layer of mucus which sweeps them to the throat, where they are coughed up or swallowed. Only particles less than 2 microns reach the alveoli, where they cause inflammation

(associated with an increased risk of cardiopulmonary diseases such as heart attacks and respiratory diseases) and must be dealt with by macrophages from the immune system.

A preliminary estimate by the NSW EPA was that each tonne of fine particulate PM10 emissions in Sydney costs the community \$40,700 in short-term health effects. The document emphasized this is an under-estimate, because the cost: *"include estimates of the costs of (short-term) mortality, morbidity and health treatment. Notably, it **does not include the cost of chronic effects (e.g. lung cancer) nor the cost of pain and suffering to victims and their families, which according to the US EPA (2000) can be many times the cost of treatment.**"*<sup>[4]</sup> Revised estimates, including long-term effects will be published before the end of 2003. However, adding in the costs of long-term health effects including cancers, pain and suffering, the cost probably exceeds \$100,000 per tonne of PM2.5. These costs should be combined with estimates of emissions from each source to devise appropriate pollution control strategies.

### **Example 1 – woodheaters**

In Melbourne, a small minority of households using woodheaters emit 5,200 tonnes of PM2.5 per year, considerably more than the combined total for motor vehicles (2,800), other mobile sources (410) and industry (1,700).<sup>[5]</sup> In the Sydney Metropolitan Airshed (SMA, covering Sydney/Newcastle/Wollongong), woodheaters emit 3,100 tonnes of PM10 every year, considerably more than all petrol-fuelled vehicles (1,160 tonnes). In fact woodheaters are the second worst polluter in the SMA, second only to diesel vehicles, responsible for 15% of vehicle km but 80% of particles (i.e. 4,640 tonnes of PM2.5 in the SMA).

To encourage sustainable development, the costs of pollution and environmental damage must be weighed against the benefits. For example, the average new woodheater installed in the SMA probably emits between 15 and 60 kg of particulates per year, resulting in estimated community costs of \$1,200 to \$6,000 per woodheater per year, based on the estimate of \$100,000 per tonne of PM2.5 emissions. There is considerable variation in emissions from new heaters, because they are tested in laboratory conditions that do not reflect current domestic operation. Smoke emissions are, in fact, determined mainly by how the heater is operated. A/Prof John Todd, an expert in woodheater testing commented: *"With a wood heat heater, unlike many other appliances, if you use the heater badly you can produce up to 100 times as much smoke as using it really well ..."*<sup>[6]</sup>

The above data show that however well the average newheater is operated, estimated health costs are considerably in excess of the benefits. Standards and use of woodheaters in urban areas should therefore be reviewed. Consideration should also be given to the introduction of smokeless zones along the lines of the very popular UK legislation. Christchurch, NZ, has banned the installation of new woodheaters, except as replacements for more polluting models; all heaters emitting more than 1 g/kg of wood will be phased out over the next 15 years.

Environmental costs of woodheater use should also be included in the overall cost, because current firewood harvesting is unsustainable. Unsustainable destruction of old-growth forest is no different from non-sustainable mining of fossil fuels. Moreover, harvesting from old-growth forests deprives wildlife, including several threatened or endangered species, of hollow logs for nesting and breeding. Rather than non-sustainably burning hardwood from old growth forests in domestic heaters, new initiatives are needed such installing insulation to reduce the need for home heating and using plantation timber to generate electricity.

### **Example 2 – diesel vehicles**

As discussed above, diesel engines are a very significant source of PM2.5 pollution, considered to be the most dangerous of all common air pollutants. In the SMA, diesel engines are the most significant source of PM2.5 – 4,640 tonnes/year, causing estimated annual health costs of \$464 million. In the Melbourne Port Phillip Region, diesel engines are second only to woodheaters. Diesel exhaust has been listed by the US EPA as a toxic air contaminant. Sustainable policies need to be developed to reduce the impact of this toxic pollution on our health. Can differential taxes and charges be introduced to encourage people to convert to LPG, natural gas, or petrol-fuelled trucks, buses and other vehicles?

## **2 Planning to reduce urban sprawl**

One deterrent to high-density living is urban noise and pollution. Therefore, sustainable cities may need to take effective measures to discourage traffic noise and other problems such as barking dogs. Even in the sub-tropical climate of Brisbane (where the average woodheater emitting 10kW of heat seems unnecessary), as in many other places, woodsmoke pollution is a significant problem. People often choose to live on large blocks to minimize the impact of the neighbour's pollution. Polluted air also discourages cycling and affects the health of cyclists. It even discourages environmentally friendly development, as illustrated by a letter written in 2003 by a Brisbane resident:

*"In 1995, I designed and built my home at Ferny Grove in an elevated position taking into account the views, orientation,*

and in an area far enough away from pollution to give a healthy lifestyle.

*"While in the design stages I took into account good design principles so that my home would be cool in summer and warm in winter without the need for additional heating or cooling.*

*"Unfortunately from 1996 on people have been installing wood heaters in their homes as they have built in this estate.*

*"From May each year through to September my home is now flooded with the stench and fumes from these wood heaters burning incessantly. I am unable to open windows, and doors, use out door living areas or hang clothes on the line to dry. Let alone the health issues caused by this.*

*"Obviously this experience has clearly shown there is absolutely no point in designing and building an efficient home in Brisbane while the Brisbane City Council allows this senseless stupidity to continue metres from your own home.*

*"Incinerators and backyard burning were banned only to return in this form.*

*"I look forward to discussing this issue with you and await your reply."*

Mark Eltherington"

### 3 Recommendations

1. To encourage sustainable development we need sustainable economics, where the cost of environmental damage such as salinity, global warming and air pollution are assessed as part of the development. Development should go only ahead if expected benefits exceed the costs, including all environmental costs. The Committee should therefore promote the development and use of sustainable economics.
2. Sustainable economics should be used to develop sustainable policies to manage the urban and rural environment. A recent report from the Australia Institute<sup>[1]</sup>, commented:  
*"The structure of the tax system can play an important role in either protecting or causing harm to the natural environment. If resources are to be used efficiently and the natural environment protected, an important first step is to ensure that the tax system does not provide either incentives to conduct environmentally damaging activities or disincentives to act in ways beneficial to the environment. There is a large body of research on the desirability of 'green taxes' and proper natural resource pricing. In recent times, both the OECD and the IMF have signalled their support for the use of taxes and other economic instruments to improve environmental outcomes."*  
The Sustainable Cities 2025 blueprint for the future should follow this advice and include mechanisms to review taxes and charges and ensure they encourage, rather than discourage, sustainability. Taxes, charges and standards for motor vehicle use (including parking), water use, woodheating, waste disposal and electricity consumption should be among the first to be reviewed. The aim should be to minimize standing charges or connection fees, so that at least 90% of charges e.g. for water and sewerage are levied on the amount consumed. For garbage, pay-by-weight or volume charges should replace the fixed charge per household and for motor vehicle use, registration and compulsory third party insurance levied per km or per litre of petrol. Special charges should be introduced to pay for the health costs of particulate pollution from diesel engines.
3. Where changes are introduced, consideration should be given to ensure poor families are not disadvantaged. This may be achieved, where appropriate, by introducing special charging systems for pension card holders.
4. Almost certainly, if the costs of greenhouse gas emissions and air pollution are included, sustainable development will be considered the most cost effective. It may nonetheless be appropriate to provide seed or development funding to encourage uptake e.g. of rooftop solar heaters and solar panels. In new developments, rooftop solar panels or heaters can be used to replace conventional roofing materials, achieving environmentally friendly developments at minimal cost. Where cost effective, consideration should be given to making them mandatory.
5. Where appropriate, regulations should be introduced for new developments, especially in relation to smokeless zones, home insulation, energy efficiency standards, rainwater tanks and management of grey water. It is likely that, once environmentally fair charging systems have been introduced, all these measures will be considered cost effective and desired by the majority of householders. Consideration should also be given to setting standards to ensure new developments are pedestrian and bicycle friendly areas, including provision of connecting links between cul de sacs and providing safe routes where non-motorised traffic has priority.
6. In tandem to encouraging sustainability by appropriate taxes and charges and standards for new development, funds should be set aside for education or promotion of sustainable activities, especially those expected to save government expense in other areas. For example, if another 40% of Australians cycled or walked regularly for transport, health costs are estimated to fall by \$2.37 billion/year.<sup>[7]</sup> The Government should therefore spend a small amount of money promoting and planning for such activities, in order to save billions in health costs.

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