Submission from Doctors for the Environment Australia to the Select Committee on the Impact of Peak Oil on South Australia

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Doctors for the Environment Australia is a voluntary organisation of medical doctors from all States and Territories which promotes human health and well-being by both educating the profession and the public on the links between environment and health and by influencing political and industry leaders to sustain the natural environment. Our opinions are scientifically based and we have the support of some of Australia’s most eminent scientists. These include Sir Gustav Nossal, Professors Fiona Stanley, Frank Fenner, Nobelist Peter Doherty and Professor Tony McMichael. Details of our Scientific Committee are available at www.dea.org.au

Peak oil will impact on the entirety of human endeavour in South Australia, not least the health and well-being of the citizens. However it would be a mistake to consider peak oil in isolation; it must be considered in the context of several other complex and interrelated factors, all of which threaten the functioning of ‘Western’ civilisations.

Human health needs are implicit in many of the terms of reference of your Committee but we will focus particularly on (a) (h) and (i)

The main points in our submission are:

(1) Peak oil is but one of several interrelated factors which threaten the security and functioning of society, not least its health and well-being.

(2) The most important health measure to be instituted urgently to counter the adverse effects of peak oil in SA is the expansion of public transport.

(3) The work of our organisation in public education leads us to believe that much more must be done to encourage people into life-styles that are conducive to health and to a sustainable society.

Indeed the theme for this submission is best summarised in the words of Sir Crispin Tickell, Director of the Policy Foresight Programme in the James Martin Institute for Science and Civilization at Oxford University

Understanding the extent of the damage we are doing to life on Earth as well as to our own society is spreading. But most people still carry on as they did. The first requirement is to think differently across the spectrum – from economics to philosophy – and to reformulate our behavior in the light of it.

1. Peak Oil in Context

As this century progresses, the single most important factor in the health of each person will not be the availability of good health services, or effective cancer drugs, or short waiting lists or ‘state of the art’ accident services. It will be the integrity of the Earth’s ecological services. Perhaps this is an understatement for it is the only factor of consequence. Without ecological services, the Earth would become ‘dead’ like many other planets including our neighbouring planets in the solar system. It follows that the protection
of these services is integral to maintaining all the advances we have made in medical science and in providing a future for further advances.

The Intergovernmental Panel on Climate Change has delivered a scientific consensus that climate change threatens civilisation this century unless greenhouse gases are reduced significantly. Changes in the physical and biological state of the Earth now indicate a much faster movement to disaster than the Panel’s deliberations have suggested.

There are other threats acting in concert with climate change. Much of the evidence is in the scientific literature, it simply needs to be synthesised into the most likely scenario. In summary the issues that act in concert, each facilitating the destructive effect of the others are climate change, loss of biodiversity which includes a depletion of natural resources, depletion of fresh water resources, loss of productive land and population expansion. The concerted and accelerating changes in the Earth’s systems have lead respected scientists such as James Lovelock to express the view that Earth will support only one billion people by the end of this century. Commensurate with these factors is the advent of peak oil which will adversely affect the production of food and which will impose urgent change on the operation of society.

What are the facts that support this statement?

(1) Climate change
Scientific consensus indicates that if the present level of 383 ppm carbon dioxide rises to exceed 450 ppm there will be a temperature rise of 2 degrees C or more which will cause widespread physical and biological effects on the planet, and on human health and well-being. To prevent this rise, a drastic reduction in emissions over the next two decades is necessary.

Climate change will have direct effects on human health for example by causing heat stroke and by sea-level rise but it will also act detrimentally on issues 2-5, 6 which were under increasing damage from other human activities before climate change took hold (see following paragraphs).

The coming scarcity of oil might be construed as beneficial for a reduction in greenhouse emissions, but there is evidence that without a dramatic increase in renewable energy sources, oil will be replaced by the use of coal in many situations.

(2) Biodiversity and ecological services
The Earth’s biodiversity is predicted to decrease by 40% if there is a 2 degree C rise in temperature. This will affect 1 and 3-5 detrimentally. For example, loss of forest cover will accentuate climate change. Loss of ecological services in soil will increase erosion, food production will fall; a reduction in the biodiversity of wetlands, forests and pastures will increase run-off and sustained availability of water.

In general, ecological services may benefit from peak oil for oil has been a major factor in economic growth, in damaging farming practices and in pollution.

(3) Loss of productive land
Humanity already cultivates all land that is capable of production. To use more, land covered by forest will be cleared. Humanity increasingly uses productive land for urban sprawl. These processes will detrimentally affect 2, 4 and 5.

Peak oil may curtail urban sprawl and the preservation of cultivatable land.

(4) Natural resources and food production
Nearly all natural (biological) resources are being used at a rate greater than their replacement and since the mid 1990’s humanity has been living on this capital as well as the ‘interest’. Food production on land is probably at a maximum. Food from the sea will fall progressively with acidification of the sea from dissolved carbon dioxide. Item 4 is adversely affected by 1-3 and 5-6.
Peak oil will severely curtail modern farming methods and food production (particularly in the case of SA) and will bring forward the point at which the world can no longer feed itself.

(5) Water resources
In certain latitudes which presently produce a significant proportion of the world’s food, climate change will be a major factor in reducing precipitation and increasing evaporation thus limiting available fresh water. This process accentuates all the other listed factors

(6) Population and economic growth
Together these two factors are the common denominator of 1-5. The population of the world at 6.5 billion is projected to increase to 9 billion by 2050. This is not possible if the above factors operate and this realisation forms the basis of security reviews that predict water-wars, conflict over food resources and displacement of entire populations as environmental refugees. Two simple examples depict the problem.

*The ecological footprint*
This is a measure of all natural resources used by each person, land for food, water etc. If every person on Earth were to have the same consumption as those in the USA or Australia, four Earths would be required. Therefore, if the justifiable demands of the poor are to be met, the developed countries will need to reduce their consumption.

*Economic growth*
The present economic system is predicated on continuous growth. This is not possible if greenhouse gas emissions are to be curbed. With a growth rate of 3%, the economy doubles in 23 years. And so on. Each doubling period consumes as much resources as all the previous doubling periods combined, so by 2030 humanity will have consumed as many resources as it has over many centuries. If we look at factors 1-6, this is just not possible. If greenhouse gas emissions are to be reduced to a safe level in 23 years, it will not be possible to have our additional energy requirements provided from non-carbon technology.

2. The Expansion of Public Transport
This is essential in terms of peak oil and climate change. The SA government has commenced a process of public transport development but much more could and should be done. Unfortunately it is regarded as expenditure whereas, when examined across government departments and with the inclusion of externalities, it is a cost saving measure.

The three main benefits are

As indicated by the Intergovernmental Panel on Climate Change, the health benefits for reduced urban pollution offset a significant proportion of the cost of reducing greenhouse emissions.

Transport is a sphere of public activity with one of the largest and fastest growing contributions to Australia's greenhouse emissions, growing by 30% from 1990 to 2005. Close to 90% of Australia's transport emissions originate from cars and trucks. Transport greenhouse gases are expected to grow (according to the Federal Government's own Bureau of Transport and Resource Economics) by 68% between 2000 and 2020. The urgent reduction of greenhouse emissions is in itself an important health measure for this and particularly future generations. The health implications have been recently documented in our report "Climate Change Health Check 2020" [http://www.dea.org.au/UserFiles/File/pdf_documents/Climate_Change_Health_Check_2020.pdf](http://www.dea.org.au/UserFiles/File/pdf_documents/Climate_Change_Health_Check_2020.pdf)
The replacement of private car transport with public transport, cycling or walking provides huge gains in the reduction of obesity, type 2 diabetes and several other disorders that are of huge personal toll and economic drain on the health services.

What are the facts?

**Obesity and diabetes**

Australia faces an epidemic of obesity, with almost 60 per cent of Australian adults and 25 per cent of children being obese or overweight, and type 2 diabetes and other health impacts from physical inactivity and unhealthy diets. The use of private transport is a major factor in inactivity.

Currently diabetes is estimated to cost $6 billion annually to health budgets, and this is expected to double by the year 2020 (National Priorities for turning around the Diabetes Epidemic 2007-2008; Diabetes Australia).

The unavailability of public transport is one of the causative factors in these conditions by reducing exercise. Research has indicated that each additional hour of daily driving leads to a 6% increase in the likelihood of obesity. On the other hand, daily activities such as walking or cycling to the shops, work or to public transport can provide the level of physical activity recommended in the National Physical Activity Guidelines. In studies of cities throughout the world, a positive relationship has been found between availability of public transport and less obesity, and this is likely to be due to factors such as commuters needing to walk to and from the bus, tram and train stops.

**Cancer**

The pollution in cities from car emissions causes an increase in colon, breast and possibly prostate cancer. There is a known relationship with breast cancer and exposure to carcinogens in exhaust fumes, particularly in children and young people. Recent research has also established a definite link between obesity and the above cancers.

**Heart and lung diseases**

Pollution in the form of particulates and noxious gases from motor vehicles increases ill health from cardiovascular and respiratory diseases. Particulates are microscopic solid particles produced by the combustion of petrol and diesel and road dust which are suspended in the air and inhaled to cause breathlessness, heart disease and attacks of asthma. There is increasing recognition that even small exposures are injurious.

**Other health issues**

- The development of good public transport systems results in fewer accidents and lower fatality rates with huge savings in health and insurance budgets.
- Public transport, by encouraging more exercise than the use of the private car, improves mental health and can delay the onset of some forms of dementia.
- There is probably a relationship between low birth weight and urban pollution.
- The additional physical activity induced by the use of public transport is important in preventing osteoporosis.
- As oil costs increase, residents of outer suburbs, often with lower incomes and increasingly disadvantaged by transport costs need public transport to remain economically viable. When there is inadequate transport they develop stresses which have health impacts on their entire families.
- Public transport is likely to have positive benefits on community participation compared with the isolation of the solitary commuter in private cars.
Cars, roads and parking areas take up greater amounts of land, increasing urban sprawl, reducing arable land near population centres, increasing water run-off and flash flooding, and increasing the 'heat-sink' effect of cities. The later may increase the heat stress on vulnerable populations during heat waves. Public transport has a lesser land usage, thus leaving capacity for more green space within and around cities.

In an ageing population older drivers no longer capable of maintaining drivers licenses will be increasingly dependent on public transport to access medical care and social contacts.

Conclusions
Attention to this matter is perhaps the most important action that state governments have within their control to reduce greenhouse emissions, improve the health of the community and to mitigate against the effects of peak oil. Overall there is evidence that it is expenditure neutral. The impediment to appropriate action relates to the structure of government, whereby a department saving a cost does not benefit in its own budget.

The reduction of greenhouse emissions is urgent if we are to avoid dangerous climate change and the time scale in providing the infrastructure for public transport might be seen to present an impediment. However many actions can be instituted now and are detailed in our transport policy “Climate change and public transport- A manifesto for Change” www.dea.org.au released in 2007. Furthermore in Australia there has been severe neglect of simple measures such as cycle tracks which in some other countries have revolutionised urban living, provided health benefits and emission saving

Case study; Cycling in Adelaide
Governments succumb to complexity and accounting anomalies!

Greenhouse gases
Every 3 kilometres travelled by bicycle saves almost 1kg of greenhouse gases; http://www.bikesa.asn.au/page.php?section=63
Costing: regarded by economic society as an externality so no Department sees budgetary benefit

Infrastructure
For every car trip replaced with a bike ride, it is estimated the community saves 60 cents per kilometre in road maintenance costs. Cost-benefit ratios of Perth Bicycle Network suggest a benefit of 12:1 for every dollar spent on infrastructure (Australian Bike Council). Costing of road maintenance. Federal, state and council funding budgets.

Health aspects
Multiple positive impacts (see above)
Thirty minutes cycle ride each day provides all the exercise you need to halve the chance of becoming obese or diabetic http://www.bikesa.asn.au/page.php?section=63
Physical activity has shown to be as effective as psychotherapy and medication in fighting common mental health issues http://www.cyclingpromotion.com.au/benefits-of-cycling
Costing Federal and state health department, industry and commerce (private hospitals)

Social aspects
Reduction of isolation
Assistance to family budgets in low income households
Costings to family budgets

The diverse nature of responsibility and costs have determined that Adelaide has a lack of dedicated off-road cycle tracks and facilities:-
New housing subdivisions do not seem to have provisions for continuous bicycle/pedestrian pathways linking public transport, retail precincts and recreation areas to homes.

There are few facilities for storage at stations, hospitals and other places of work.

Buses and trains do not carry bicycles with ease.

Traffic management practices discourage walking and cycling.

Yet all these issues have been solved in many cities in the world.

3 Public Education

The World Health Organisation estimates that approximately 40% of human disease has an environmental cause. The role of our organisation is the education of the public, doctors and our elected representatives in the complex causes of ill health in relation to the environment. As we have seen the predicted causes of ill-health due to climate change are related to environmental sustainability.

In relation to terms of reference (i) The need for public education, awareness and preparedness, it is essential that much more be done in Australia and indeed in South Australia to educate the entire community for part of the solution to our problems is a fundamental change in our lifestyle.

This need is also evident in government where aims for population growth conflict with the destiny of the state, and in sound evidence from the Intergovernmental Panel on Climate Change and where major developments conflict with environmental sustainability for water resources.

Within the context of our profession, Doctors for the Environment has approached this issue by using educational material at sites where most persons go at some time each year—the doctors’ waiting room. For example we have ensured that all 25,000 of the family doctors who are members of the Royal Australian College of General Practitioners have the option of our educational posters in their waiting rooms.

It will not need the deployment of major resources to create educational facilities to favoured destinations for the community for example the shopping malls and community centres. These points will be developed in discussion with the Select Committee.

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