

ASPO-Australia

Australian Association for the Study of Peak Oil & Gas

www.ASPO-Australia.org.au

Health Sector working group

Acting convenors, Lynda Braddick and Bruce Robinson,

lyndanz@hotmail.com & Bruce.Robinson@ASPO-Australia.org.au

08-9258-3556 Mobile: 0421 196 387; 08-9384-7409 0427 398 708

Health is just one example of the many crucial community sectors which will be substantially impacted by Peak Oil. It illustrates the need for oil vulnerability task forces to be set up for each specific sector and also for most individual organisations to assess and manage the risks posed by the probability of Peak Oil. ASPO-Australia does not currently have input from professionals in the Health Planning area, so this summary is much less well-informed than we would like. We hope to update this review in due course when expertise is volunteered.

The ASPO-Australia Health Sector working group feels it imperative that action is taken now to reduce the oil vulnerability of Australia's health system by a program of risk assessment and risk management concentrated on ways of its reducing dependence on oil for transport. President Bush has acknowledged that the US is addicted to oil. Australia is equally dependent on oil and equally vulnerable to oil shortages. Our nation may well be hit very seriously by Peak Oil within a decade or sooner, and it is essential to start implementing mitigation and adaptation measures well before the Peak arrives. This is because of the long lead-times needed to complete infrastructure programmes.

Australia's oil and refined product imports are already about \$15 billion pa and will grow many-fold as our level of self-sufficiency drops sharply in the years ahead and as world crude oil prices rise after Peak Oil. In about a decade, Australia will be using over 1 million barrels of oil per day, and producing only about a third of that (Geoscience/ABARE). Importing the remainder will cost almost Au\$50 billion pa, at current exchange rates if the international oil price only doubles in the next decade, and of course much more if oil prices continue rising sharply.

This financial year, the Federal Government alone will spend over \$44 billion on Health and Ageing (up 6.7 per cent on last year). A similarly large amount is spent by the States. However, a great deal of our health system depends on oil, as a transport fuel for staff to get to work, for patients to get to appointments, for ambulances, the Flying Doctor, for the essential maintenance and support services in hospitals and other health delivery centres and a myriad of other purposes. We urge the Federal Government undertake an Oil Vulnerability review of the health system so it is better prepared for sudden emergency fuel shortages and in particular for the long-term shortages predicted when Peak Oil arrives

There will also be substantial long-term benefits to community health levels from Peak Oil, if the levels of physical activity in the community increase, improving both physical and mental health levels. This aspect is largely outside the scope of this submission and is covered by the ASPO-Australia Active Transport Working Group submission. Two references are included here.

(a) *"Fossil fuels, transport, and public health"* British Medical Journal: Editorial, 2000, in which three very eminent academics from the University of London and the co-chair of the IGPPC outline the health problems caused by our car-dominated societies. Levels of obesity are much lower in the Netherlands where active transport, like cycling, is much

more common, than in the UK where active transport participation has been declining sharply.

(b) *"Energy Dependence"*, where an Australian psychiatrist outlines the behavioural pathology background to what President Bush has called "addiction to oil". It is the prospect of behavioural change, rather than technology which offers the most hope for minimising our oil vulnerability. These issues are covered in the recommendations of the main ASPO-Australia submission. Australians have seen substantial changes occur in attitudes and behaviour towards unhealthy practices like smoking and drink driving. There is potential for improvement in our automobile dependence attitudes before Peak Oil impacts hard on those not yet at least partially immunised against full-blown automobile addiction.

Another probable long-term health benefit from Peak Oil is a sharp reduction in road trauma. This will result from declining car travel and further reductions in urban and open-road speed limits as a fuel conservation measure. The Federal Office of Road Safety Study (CR109, June 1992) showed that a 10% drop in petrol use correlated with a 25% drop in fatal accidents. Peak Oil may well halve Australia's road trauma morbidity, saving some 800 lives pa, and avoiding some 15,000 hospital admissions each year from road trauma.

Currently a great deal of Australia's health service delivery is based on the availability of cheap oil. As one example, patients without cars have to get friends or relatives to take them to medical appointments. These sorts of problems will be exacerbated by Peak Oil if fuel is in short supply, very expensive or formally rationed. It is essential for health planners to include scenarios where automobile transport is not nearly as commonly available, and where many more people will travel by public transport, bicycles or on foot (or a combination of these modes). Small low-powered electric vehicles (gophers) already used by the elderly, will become much more important, due to improvements in the technology and demographic changes. Transport pattern changes resulting from Peak Oil will impact seriously on the health system **unless** substantial changes are made to forward planning strategies in the Health Sector.

The aging population of Australia will also continue to place increasing pressure on transport access to health facilities. The ABS, National Health Survey (2001) informs us that prevalence of most long term medical conditions increase with age. It predicts that the proportion of the population aged 65 years and over will increase from 13% at June 2002 to between 27% and 30% by 2051. The Western Australian Health Reform Committee's Report in 2004 states that one in four people aged 65 years and over attended a metropolitan emergency department during 2002/3.

The increasing scarcity and expense of oil will present great challenges to providing adequate transport facilities for staff, visitors and patients to regional and urban medical centres. During the interruption in oil supply in Europe in late 2000 hospitals had a red alert because staff and patients could not reach them. A recent survey by Royal Perth Hospital in Western Australia found that of the 859 patients and visitors interviewed, around 60% came to hospital by car. The results also showed that 74% of employees interviewed at the central Wellington Street Campus and 93% at the suburban Shenton Park Campus got to the hospital by car (Sinclair Knight Merz 2004). This high level of dependence on private car transportation by patients and staff working at hospitals is common Australia-wide. We need to develop and encourage use of alternative forms of transportation well in advance of the likely problems from Peak Oil.

The focus on development of facilities for transport to Australian hospitals has been dominated by providing extensive car parks; thereby encouraging high levels of private car transportation. As an example, currently 4223 staff work at Royal Perth Hospital and the hospital provides 3482 car park permits for staff. Only 406 staff currently cycle to work. The hospital currently has no plans to encourage staff, patients or visitors to travel to hospital using alternative forms of transport to private cars. At Caulfield Hospital in Melbourne, the old nurses' quarters have been demolished and an enormous multi-storey car park built. In past decades, nurses could walk from their night-shift to their room to sleep till the next shift. Currently, the nurses walk to the car park and drive what may be long distances home, before returning by car for the next shift. If petrol prices increase towards \$5 or the \$10/litre scenario (see [http://stcwa.org.au/beyondoil/\\$10petrol.doc](http://stcwa.org.au/beyondoil/$10petrol.doc)) these transport patterns will no longer be practical.

Workplace TravelSmart and Individualised Marketing strategies have been proven to shift transport towards more sustainable modes, like cycling and public transport. This would be a valuable mitigation and adaptation strategy for the Health Sector to reduce its oil vulnerability. Overall individualised marketing (see ASPO-Australia main report) has reduced car-kms by some 12% in a number of Australian cities. As well broadly similar results have been achieved in a number of countries overseas. These behavioural approaches will be essential to strengthen Australia's health sector services against the worst effects the arrival of Peak Oil may bring.

ASPO-Australia in its main submission has advocated a SmartCard flexible fuel allocation system where people working in essential services such as hospitals, receive an allowance of fuel at the base taxation rate to assist them in getting to work, while their ordinary use may be taxed at a higher rate, especially if they are profligate users of fuel. However, most people will claim their job is essential, so constraints on fuel availability may remain. Domiciliary care will be affected by sharply rising fuel prices or rationing. For instance, the Home and Community Care (HACC) Program, is a central element of the Australian Government's aged care policy, providing community care services to frail aged and younger people with disabilities, and their carers. This essential service depends on nurses and allied health care staff being able to travel to clients' homes by car.

Providing facilities for alternative forms of transport are already justified on health, environmental and social equity grounds. Peak Oil implications create additional leverage for urgent policy change. Infrastructure levels for sustainable transport options need to be greatly increased in our cities and towns in general. This would assist health and aged care services get to clients in their homes. Specific infrastructure improvements are also needed in addition to help staff, patients and visitors get to health service facilities

As an example, the WA Government plans to establish or improve hospitals in several regional centres to comply with the Western Australian Health Reform Committee's recommendations to provide more accessible secondary level care, closer to where people live. Plans to expand general and mental facilities in four outer metropolitan areas will also reduce the need for people to regularly travel long distances for treatment. However, future oil shortages and the potential for large increases in fuel prices demand that adequate facilities for staff, patient and visitor accessibility be included in plans like these. Facilities need to include a greater emphasis on public transport, pedestrian and cycling facilities as well as to reconsider on-site staff accommodation, perhaps a modern version of the old nurse's quarters.

Government direction will be needed to mitigate the damage the rise in oil prices will cause. Government strategies to develop adequate facilities at regional and urban medical facilities will

enable people to change the way they travel to work or for treatment. Current trends to centralise facilities offer economic advantages for administration and technology. However they also require far-sighted planning and design to ensure the availability of worker, patient and visitor transport that does not rely on cheap fossil fuels. The development of adequate transport facilities to all medical centres will be very important for maintaining the general health of the people of Australia as they adapt to falling world oil supplies and the rising price of oil.

References:

1: "Factors Affecting Fatal Road Crash Trends", Pettit, Haynes and Choy, Federal Office of Road Safety Report CR109, June 1992.

Appendix 1:

Editorial in the British Medical Journal: November 2000

Fossil fuels, transport, and public health

Andy Haines, Tony McMichael, Ross Anderson, and John Houghton
BMJ 2000;321 1168-1169,

See <http://bmj.com/cgi/content/full/321/7270/1168>

Editorials

Fossil fuels, transport, and public health

Policy goals for physical activity and emission controls point the same way

The recent protests in Britain over the price of fuel initially seemed to enjoy public support: any cause that might put more money in the public's pocket is superficially attractive. But our dependence on motor vehicles powered by fossil fuels incurs an array of external costs to the environment and the public's health. Further, the resultant accumulation of carbon dioxide, a greenhouse gas with a very long life, is storing up trouble for us and for future generations.

In 1994 the Royal Commission on Environmental Pollution pointed out that methods of transport had changed dramatically over the previous 25 years. In Britain the average daily distance travelled per person has risen by 75% to around 18 miles.(1) Most of this reflects an increase in the use of cars, amounting to a 10-fold increase in distances travelled over 40 years. This has been accompanied by a decrease in travel by bus, coach, bicycle, and in walking. Transport of freight by road has also increased but at the expense of rail travel. Yet if the external costs of road freight (in terms of accidents, road congestion, air and noise pollution, etc) are calculated and added to the costs of providing and maintaining transport infrastructure, public revenue from heavy goods vehicles contributes only 49-68% of total costs.(1)

The potential adverse effects of transport on health include accidents, air pollution, noise, the social exclusion of vulnerable groups, and the development of sedentary lifestyles which lead, for example, to obesity.(2) Our increasing reliance on private transport has created an urban environment that is unfavourable to walking and cycling. Over the past two decades there has been a marked reduction in the proportion of children who walk or bicycle to school and a substantial rise in childhood obesity in the United Kingdom and a number of other countries.(3) The daily energy expenditure of British adults has declined since the 1950s by the equivalent of 2-3 hours of walking per day. It is no coincidence that the prevalence of obesity the precursor to ASPO-Australia Health Sector working group

many diseases in adulthood that shorten life, particularly high blood pressure, heart disease, and diabetes has risen markedly in recent decades.(4) **The prevalence of obesity in adults and its rising trend over the past two decades is much less pronounced in the Netherlands than elsewhere in Europe (3); this probably reflects the fact that the Dutch rely on bicycling, walking, and using trams to travel.(5)**

A recent report assessed the contribution of traffic related air pollution to mortality and morbidity in Austria, France, and Switzerland. It used effect estimates from two cohort studies in the United States and found that particulate matter was responsible for about 6% of total mortality. About half of this was attributable to motorised traffic.(6) Cohort studies suggest that the long term effects of outdoor air pollution are greater than is evident from analyses of daily mortality over time.(7) Air pollution from traffic may be responsible for the excess number of lung cancers in urban areas that remain after adjusting for smoking.(8)

Although in recent years technical improvements have resulted in reductions in air pollutants related to transport there is no room for complacency, and the government of the United Kingdom has acknowledged that its provisional air quality objectives for fine particles are unattainable in the near term.(9)

The transport sector accounts for 26% of all carbon dioxide emissions in the European Union, and its contribution is rising. The concentration of carbon dioxide in the atmosphere has increased by around one third over the past 150 years, and it is a major cause of the worldwide rise in temperatures and the changes that are occurring in the climate.(10) There is a growing awareness that global warming may have various effects, mostly adverse, on health.(11) Although any single event cannot be attributed to climate change with certainty, the recent floods in parts of the United Kingdom are indicative of the type of extreme event which is likely to become more common in the future.

Recognition of the health costs of the present UK policy on transport leads to the conclusion that society must do several things soon. The availability and quality of public transport must be improved, and walking and cycling should be encouraged. This should be done not just to avoid road congestion and reduce air pollution but also to re-establish higher levels of physical activity and to enhance community cohesion by improving opportunities for social interaction.(5)

The use of fossil fuel must be curtailed as newer, renewable energy technologies emerge. There should be greater incentives to develop more energy efficient vehicles and to reduce pollution levels for example, by fitting particulate traps to heavy vehicles. A tax on carbon could help the United Kingdom reduce its carbon emissions by about 60% by 2050.(12) The regressive aspect of the tax could be offset by ensuring that well subsidised public transport is accessible to communities that are at a disadvantage either through poverty or by living in a rural area.

Society will benefit from a more efficient, less polluting transport system. Taxes on fuel do not compensate for the damage caused by road transport, but they may provide the resources to develop cleaner options and the encouragement to use them.

Andy Haines, Professor, Primary care.

Department of Primary Care and Population Sciences, Royal Free and University College Medical School, London NW3 2PF

Tony McMichael, Professor, Epidemiology.

Epidemiology Unit, London School of Hygiene and Tropical Medicine, London WC1 7HT

Ross Anderson, Professor, Epidemiology and public health.

Department of Public Health Sciences, St George's Hospital Medical School, London SW17 0RE

John Houghton, Co-chairman, scientific assessment.

Intergovernmental Panel on Climate Change, the Meteorological Office, Hadley Centre for Climate Prediction and Research, Bracknell RG12 2SY

References:

1. Royal Commission on Environmental Pollution. Transport and the environment. London: HMSO, 1994. (Cm 2674.)
2. Dora C. A different route to health: implications of transport policies. *BMJ* 1999; 318: 1686-1689[Full Text].
3. International Obesity Task Force. Obesity: preventing and managing the global epidemic. Geneva: World Health Organization, 1998. (WHO/NUT/NCD/98.1.)
4. Prentice AM, Jebb SA. Obesity in Britain: gluttony or sloth? *BMJ* 1995; 311: 437-439[Full Text].
5. Newman P, Kenworthy J. Cities and sustainability: overcoming automobile dependence. Washington, DC: Island Press, 2000.
6. Künzli N, Kaiser R, Medina S, Studnicka M, Chanel O, Filliger P, et al. Public health impact of outdoor and traffic-related air pollution: a European assessment. *Lancet* 2000; 356: 795-801[Medline].
7. McMichael AJ, Anderson HR, Brunekreef B, Cohen A. Inappropriate use of daily mortality analyses to estimate longer-term mortality effects of air pollution *Int J Epidemiol* 1998; 27: 450-453[Abstract].
8. Nyberg F, Gustavsson P, Jarup L, Bellander T, Berglind N, Jakobsson R, et al. Urban air pollution and lung cancer in Stockholm. *Epidemiology* 2000; 11: 487-495[Medline].
9. Draft air quality strategy defends weakening of PM10 objective. *Environ Data Serv Rep* 1999; 295: 38-39.
10. Houghton JT, Meira Filho LG, Callander BA, Harris N, Rattenberg A, Maskell K, eds. Climate change 1995 the science of climate change: contribution of working group 1 to the second assessment report of the Intergovernmental Panel On Climate Change . New York: Cambridge University Press, 1996.
11. McMichael AJ, Haines A. Global climate change: the potential effects on health. *BMJ* 1997; 315: 805-809[Full Text].
12. Royal Commission on Environmental Pollution. Energy the changing climate. London: Stationery Office, 2000.



Turning the addicted to the ways of goodness and modest energy use will demand forceful persuasion.

The Energy Dependence Syndrome

John Spencer Department of Psychiatry and Behavioural Science, Sir Charles Gairdner Hospital, The Queen Elizabeth Medical Centre, Nedlands, WA 6009

THE CONCEPT OF DEPENDENCE was described 12 years ago by Edwards and Gross (1978) in an attempt to objectify and classify behaviours associated with substance use which had previously loosely been described as 'addiction'. Whilst the dependence syndrome may not be the final key to our understanding of this complex set of human behaviours, it has generated useful discussion and provoked research.

The dependence syndrome is a set of behavioural responses with several

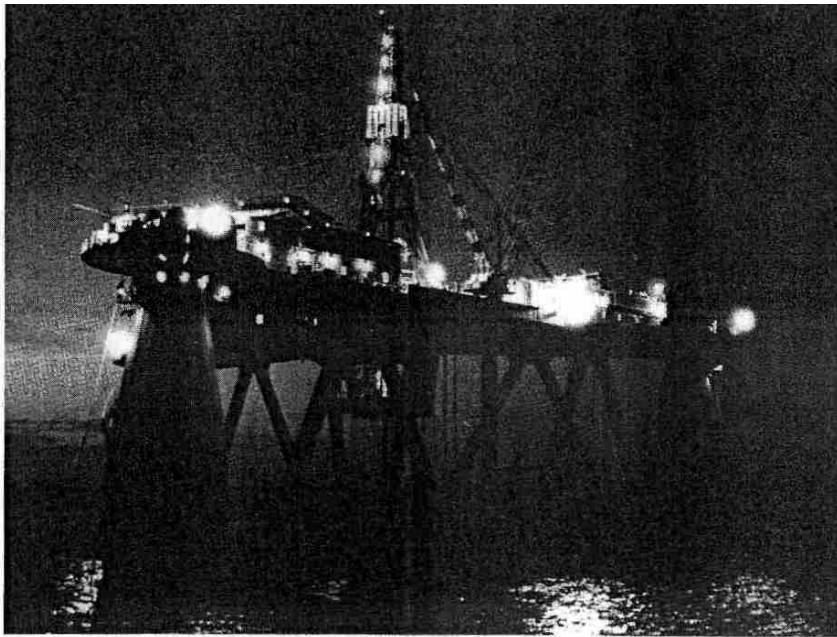
clearly identifiable elements. It is recognizable, consistent and measurable by standardized behaviour rating scales. Several writers have noted that the dependency paradigm can be broadened considerably from its narrow focus on substance use to include other compulsive behaviours such as gambling (Fink 1961), exercise (DeCoverley Veale 1987), eating and work (Hodson & Miller 1982).

Whilst there is increasing concern over the AIDS epidemic which is presently being fuelled by addiction to intravenous drug use, there is another, less obvious type of dependence which is just as sinister since it is not yet perceived as a form of dependence. As a result, solutions are being sought by try-

ing to treat symptoms and not causes, a result which workers in the addictions field know only too well to be futile. Our consumption of energy fits the dependency model in many ways and can usefully be conceived of according to the paradigm. Furthermore, I believe this view is more than metaphorical as some of the underlying causal factors are the same.

There is presently increasing concern and discussion over the problems of the survival of the environment in which the human species exists. However, despite the possible serious consequences of the almost daily warnings, there is little global action to slow down the increasing production of the factors which are alleged to contribute to this forthcoming catastrophe. This sophisticated form of cognitive dissonance and failure of the species to take action over what many regard as self-destructive behaviour is a similar collective psychological mechanism to the denial and dissociation observed in individuals while suffering from alcohol or other drug dependence. The major features of the energy dependence syndrome would match closely the seven characteristics common to other types of dependence.

Tolerance With continued use the dependent person is able to tolerate increasing quantities of the substance in question without apparent harm. These increasing amounts are required to



The current concern about oil supplies would not be as great had not consumption levels rebounded so quickly after the time of relative abstinence in the 1980s.

achieve the same inner psychic gratification previously obtained by a small dose. Similarly, the demand for energy-consuming technology is continually increasing. Household equipment which used to be operated manually is now almost entirely power driven and access to personal transport is almost considered an inalienable right. Increases in efficiency are offset by the number of gadgets and frequency of use.

The increasing personal use of energy has brought about a corresponding acceleration in the pace of daily life. In turn, this contributes to increasing life stress in all its forms which we somehow tolerate at levels which would have been intolerable even a decade ago. Many of these stresses are the direct hazards of increasing energy use such as accidents, pollution, environmental damage and the general deterioration of lifestyle in large urban centres.

Withdrawal Phenomenon There is a phenomenological parallel to the loss or removal of the addictive substance. When the source of supply of energy ceases both psychological and physical consequences occur. A common energy withdrawal syndrome occurs during and following a prolonged and unexpected power cut. The personal and social chaos includes traffic accidents, industrial losses, increased breaking and entering, looting, petty crimes, disruption of transport schedules and unplanned pregnancies. Our

increasing reliance on computers leads to social and industrial chaos when their energy supply fails.

Relief from Withdrawal Syndromes Relief from these chaotic symptoms occurs quite dramatically and quickly when the commodity in question (energy in this case) is reinstated. The breakdown in behaviour and social disorder is quickly resolved and normal behaviours resume.

Subjective Compulsion Compulsion implies a craving or a strong desire to behave in a particular fashion. The desire to consume energy in all of its forms is compelling and often unchallenged. In the home energy is increasingly consumed in the form of the electrical apparatus. Hand whisks, carpet sweepers, hand rules, saws, manual lawn mowers and hedge cutters all now belong to a previous era and we are urged and coerced by both inner

psychic and outer market forces to employ power-assisted and energy-consuming equipment and to discard all those which are driven by human muscles. In industry, power-assisted machinery and electronic computers have ousted millions of human beings who previously predominated at the factory bench. Similar changes are occurring in the sport and leisure industry where computers and mechanization have been introduced into such activities as golf, boating, speed sports, holiday travel and tourism. The essence of compulsive behaviour is the unconscious, seemingly illogical human desire to obtain as much as possible as rapidly as possible and with a minimum of human effort. The desire for instant gratification is partly assuaged by increased acceleration, greater speed and more power. It is these obsolete, unconscious human urges which power the compulsive phenomenon. It is this craving which leads to the problem of

'Few Australians or New Zealanders are ever far from the internal combustion engine or the electrical power point.'

impaired control over the offending substances which is so characteristic of dependence upon substances and other behaviours such as eating, gambling or exercise.

ALCOHOL AND ENERGY DEPENDENCE COMPARED

| ALCOHOL | ENERGY |
|--|---|
| Tolerance | Ever-increasing demand for energy-consuming equipment |
| Withdrawal phenomena | Social disruption, commercial disorder, personal/domestic inconvenience |
| Relief by further drinking | Relief when energy supply returns |
| Compulsion and craving | Urge/desire to purchase the new and discard the old manual power |
| Narrowing of behavioural repertoire | Human behaviour increasingly governed by proximity/availability of supply |
| Salience | Increasing priority to maintain consumption despite consequences |
| Re-instatement of use after abstinence | Return to former consumption levels following period of scarcity |



Narrowing of Behavioural Repertoire Most of modern life depends upon a constant supply of energy in order to function either at home, at work or at leisure. Our lives are to a large extent governed and directed by the location and presence of energy outlets. We plan our daily schedules around the bus, the car or the train service. Energy-consuming technologies direct how we work and our children's recreation depends on transport to and from the various venues involved. Few Australians or New Zealanders are ever far from the internal combustion engine or the electrical power point.

'Scolding from friends and relatives has its equivalent in the warnings of environmentalists.'

Salience The increasing priority given to consumption of an addictive substance despite obvious unpleasant consequences is a central feature of the energy consumption dilemma. Most of the recommendations and strategies developed to prevent environmental catastrophe give priority to maintaining rather than decreasing energy use despite the environmental consequences. Scolding from friends and relatives has its equivalent in the warnings of environmentalists, but is often countered by industry as a failure to understand the real issues.

Reinstatement of Use After Abstinence Because modern civilization is never placed in the situation of absolute energy abstinence, the comparison

with alcohol is difficult. Alcoholics do find abstinence surprisingly easy to maintain but dependence can be readily reinstated. We do know that when we have been forced to use less energy (rather than abstain), such as during the fuel crisis in the early 1980s, we are able to survive without any difficulties, yet when the crisis resolves we are fairly quickly reinstated into our earlier patterns of increased energy consumption. One reason for the current conflict in the Middle East is that oil consumption in the US had returned to its peak in the 1970s.

If energy dependence is a valid concept, then there are serious implications. If everybody emulated the average energy consumption of the North American, the sheer enormity of the side effects in terms of heat and pollution would overwhelm the world's ecosystems. Nevertheless, consumer industries still appear from their advertisements to be striving towards this goal and governments continue to cherish expansion and increasing gross national production.

If it were possible to persuade our leaders that energy use did follow addictive principles, the task of withdrawal and rehabilitation would be considerable. Should we recommend maintenance therapy like fixed doses of synthetic opiates for heroin users? Should we develop special treatment centres for the more dependent sufferers? What should be regarded as a safe daily personal level of energy consumption? This has now been worked out for alcohol using internationally agreed units called standard drinks. Chilean economist, Manfred Max-Neef (1982) defined an equivalent unit, an 'Ecoson', as the optimum drainage of resources required for a person to attain an acceptable quality of life. Perhaps some form of energy rationing system could be calculated mathematically which might then lead to the introduction of controlled energy usage. One basic principle in the management of problem drinking is to persuade drinkers to 'cut down' before damage and dependence occur. This advice contradicts the persuasive attempts of the liquor industry whose major goals of profit and expansion are at variance with the future health of the consumer. The parallel with the energy-consuming gadgetry industry is obvious.

Finally, I believe it is relevant to comment that during the past few years the prevalence of addictive behaviours in both Western and developing countries has shown a marked increase. Large sums of money are made by illicit international agencies in producing, distributing and establishing markets for cocaine, heroin and amphetamine drugs. Equally massive funding is di-



rected by governments at surveillance, interception and policing in an attempt to stem the flow of these commodities to the millions who have acquired a drug dependency problem. Meanwhile, the illicit suppliers of nicotine and alcohol products increasingly focus their attentions on developing countries by massive advertising campaigns directed at young people in an attempt to encourage them to take up dependency behaviours which when acquired will require continued substance use for life.

Many respected thinkers have pondered on the cause of this recent epidemic of dependency behaviour. Karl Jung believed that following the demise of religious and spiritual values the human species now suffers from a collective neurosis of emptiness. Victor Frankl, following a similar tack, sees the species as suffering from an 'exist-

'What should be regarded as a safe daily personal level of energy consumption?'

ential neurosis in which an absence of meaningfulness is the major pathology.' It is also sobering to recall that over 2000 years ago Buddha hypothesized that the origin of suffering is due to uncontrollable craving. The increasing use of drugs, alcohol, gambling, computer games, and perhaps energy and all its associated gadgetry is a modern response to meaninglessness and emptiness as we continue to search for our souls. If this is the case, then the

task of persuading the citizens of the world to control these excessive behaviours is an even greater challenge than it first appears.

References

- DeCoverley Veale, D. M. W. (1987) Exercise dependency. *Brit. J. Addiction* **92**, 735-740.
- Edwards, G. & Gross, M. M. (1976) Alcohol dependence provision descriptions of a clinical syndrome. *Brit. Med. J.* **1**, 1058-1061.
- Fink, H. K. (1961) Compulsive gambling *Acta Psych. Scand.* **9**, 251-261.
- Hodson, R. & Miller, P. (1982) Workaholism. In: *Self Watching — Addiction Habits, Compulsions — What To Do About Them?* Methuen Press, London.
- Lederman, S. (1956) *Alcohol and Alcoholism, Volume 1*. Presses Universitaires de France, Paris.
- Max-Neef, M. H. (1982) *From the Outside Looking In*. Dag Hammarskjöld Foundation, Stockholm.