A TAX TO MAKE THE POLLUTER PAY

The Application of Pollution Taxes within the Australian Legal System

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(For submission in the subject of Natural Resources Law)

CONTENTS

1. INTRODUCTION

Industrial waste within Victoria is now regarded as a threat to both personal health and social prosperity. The scope of the problem casts grave doubt upon the efficacy of our current legal approach to waste management. In that context, it is perhaps time to consider the introduction of pollution taxes.

One of the consequences of the political changes which have rocked Eastern Europe during the past year, has been the disclosure that the air, water and land resources of many regions have been fatally contaminated by toxic waste and industrial by products
[FOOTNOTE] Painton, Frederick, "Darkness at Noon", Time, 9/4/1990, p.40 & 41.. The perception is that by comparison, Australian industry has been relatively benign in its effects upon the urban and natural environment. However, although the damage is thankfully not as dramatic as the "fishless lakes, dying forests and blackened cities"
[FOOTNOTE] Ibid., p.41. of
Poland, Czechoslavakia and East Germany, there is mounting evidence that routine industrial practice has discharged dangerously high levels of pathogenic pollutants into Australia's commonly held natural resources. Thus, as Greenpeace toxics campaigner Simon Divecha says:
"Toxic wastes have contaminated vast sections of Australia's environment, in some cases leaving areas unable to support any life."

[FOOTNOTE] Divecha, Simon, Victoria Toxics Campaigner, Greenpeace, Personal Communication, 24/8/1990.
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"1.1 EXTENT OF THE POLLUTION PROBLEM.
The Victorian Environment Protection Authority (E.P.A.) has recently established a contaminated sites register which lists those locations regarded as too dangerous to sustain human activity. By mid May 1990 according to E.P.A. spokeswoman Jan Burbury, thirty seven sites had already been declared uninhabitable, whilst a further three hundred and fifty sites were under inspection and are expected to bec added to the list
F('.f
before the end of 1990
F 4 Burbury, Jan, Media Relations Officer, Environment Protection Authority (Victoria), Personal Communication, 14/5/1990.. It is anticipated
that over one thousand sites may ultimately be declared contaminated in Victoria alone
[FOOTNOTE] Ibid..

The suburb of Kingston, twenty kilometres south of central Brisbane has been declared Australia's Love Canal

[FOOTNOTE] Kissane, Karen, "Toxic Time Bomb", Time, 18/6/1990, p.10. in response to the high level of leukemia, asthma and nausea which are alleged to have been caused by the cyanide tailings, chemical dump and abandoned oil repository on which the suburb was built
[FOOTNOTE] Ibid, p.11.. Similar problems have been reported in Sydney, Newcastle, Wollongong, Geelong and other population centres throughout Australia
[FOOTNOTE] Ibid, p.11.
Also Ministry for the Environment (N.S.W) "Establishing an Environment Protection Authority for New South Wales", State of the Environment, July 1990, No.7, New South Wales Government, Sydney, p.5..

In addition to contaminated dry land sites, according to recent disclosures by the Melbourne and Metropolitan Board of Works (M.M.B.W.) and environment groups, substantial quantities of dioxins, furans and toxic chemicals are being routinely released into Melbourne's sewerage and river systems
[FOOTNOTE] Kiely, John, "Greenpeace threatens more raids on Nufarm", The Sunday Age, 13/5/1900 Greenpeace, Public Letter regarding Nuform, June 1990.
Greenpeace, Dioxans, Furans the True Story
Melbourne, June, 1990.. Outside of Victoria, there are many further examples of commercial waste which has caused substantial marine damage. Lake Boney in South Australia has not only been rendered unsafe for drinking, but also for swimming and boating as a result of the discharge of untreatedB, organochlorines into the lake

[FOOTNOTE] Hughes, Peter, "SA Paper Maker plans to stop polluting large lake", The Age, 8/6/1990.
. In Sydney, many of the
beaches are notorious for the extent of both organic and inorganic pollution to which they are subject

[FOOTNOTE] Moore, Tim, "Ministerial Statement", State of the Environment, May 1990, No.5, New South Wales Government, Sydney, p.11.. Furthermore,
samples taken from Morton Bay and other nearby industrial outlets have disclosed the presence of heavy metals substantially in excess of standards deemed unsafe by the World Health Organisation

[FOOTNOTE] Divecha, Simon, op.cit.

The full scope of industrial pollution in Australia is unknown. However, there is little doubt that the discovery of critically high levels of lead and arsenic tailings at newly developed housing estates in Ardeer, Deer Park and Yarraville, are not simply isolated instances

[FOOTNOTE] Burbury, Jan, op.cit.
Residents have been advised to move by the EPA, as heavy metal contamination levels exceed W.H.O. standards by up to a magnitude of ten. . The
presence of algal blooms in Port Philip Bay
[FOOTNOTE] Ibid. , and the
detection of significant concentrations of mercury in Bay Schnapper and Flathead$
[FOOTNOTE] Divecha, Simon, op.cit. have been attributed to organic and
inorganic by products of production processes being used by Victorian industry.(
[FOOTNOTE] Ibid.

Contamination of natural resources is not however confined to industrial waste. The Australian Water Resources Council recently compiled a report in which the sources of groundwater pollution in Australia were identified as:B,"Industrial waste(30.2% of the known pollutants),
sewerage lagoons(21.7%), landfill(13.2%), petroleum leakage(12.3%), food processing waste(7.5%) and agricultural waste(4.7%)."
[FOOTNOTE] Lane, A.P., "Groundwater Pollution in Australia: Problems, Policies and Challenges", Water, June 1990, p.18. A

Although "industrial" waste was itself given a narrow definition, it contributed to the high incidence of both sewerage and landfill contamination. Importantly, all sources of toxic waste identified by the Resources Council study, with the possible exception of agricultural waste, may be readily subjected to the imposition of emission charges.

Specific examples of damage caused by chemical waste, along with a general deterioration in the air and water quality of Australia's major cities
[FOOTNOTE] Janes, Boris, "National Strategies for Managing hazardous waste", Chemistry in Australia, May 1986 p.142 at p.143., provide damning evidence of the
failure of our current legal regime to control industrial pollution.

It is this alleged inadequacy of the present legislative approach to waste control, and the potential which market based incentives possess as a means of decreasing industrial pollution, which is the focus of this paper.

In Victoria, numerous toxic substances are discharged into

the State's rivers and drains upon payment of a licence fee either to the E.P.A. or the M.M.B.W.. The low scale of these licence fees has sanctioned the release of intractable wastes such as cadmium, mercury and arsenic
[FOOTNOTE] Kiely, John, op.cit. Divecha, Simon, op.cit., into Port Phillip
Bay. Each of these metals has been linked with dramatic health problems in other countries
[FOOTNOTE] World Health Organization, Heavy Metal Poisoning in Japan, New York, World Health Organization, 1975, p.15..
XWe would argue that the current practice of licensing pollution discharges in conjunction with a regulatory approach, neither acts as a significant deterrent to the output of toxic waste, nor even recoups the cost of enforcing environmental regulations. Those fees which have been imposed have been inadequate and therefore ineffective. Kerry Packer's Chemplex, which is merely one of a series of companies subject to similar regimes, has paid only $16,000 per year for the right to release forty varieties of untreated chemicals into the State's air and water systems including sulphur dioxide, ammonia and chlorine compounds
[FOOTNOTE] Kiely, John, op.cit..
According to the Chairperson of the E.P.A., Dr. Brian Robinson, it costs the authority over $100,000 per year, simply to control the waste from this one firm alone
[FOOTNOTE] Ibid..

Two fundamental questions arise from the present legislative approach to controlling industrial pollution. First, what are the faults with the current regime? Secondly, how practical is an alternative waste tax based system for protecting common air, land and water resources ? This latter question requires analysis of both the legal structure of such a tax, and its constitutional status.

1.2 HYPOTHESES
Underlying any analysis of an appropriate response to controlling pollution is a philosophical choice as to which party should ultimately bear responsibility for the costs of waste minimization. It will be our contention throughout the paper, that in contrast to the current Victorian legislative structure which still perceives environmental control as essentially a community responsibility and burden, the market system is a preferable regime, as it better ensures that the polluter bears full responsibility for the cost of his or her conduct. Thus as Tom Burke, director of Britain's Green Alliance suggests:f
"The truth is that for far too long industry has succeeded in transferring a substantial proportion of its real costs to the community as a whole. It is only the inevitable consequence of the efficient working of the market place that society should develop mechanisms for transferring them back.
[FOOTNOTE] Elkington, John, The Green Capitalists, London, Gollancz, 1989.

We propose to argue the overall thesis on the basis of three hypotheses. The first hypothesis is that the current legal regime in Victoria has failed to adequately control toxic waste discharge. This failure is relative both to standards of control attained in many other industrialized states, and to the potential achievement which could reasonably be expected from an advanced system of waste management. We would argue that the regulatory approach has been seriously and perhaps inevitably flawed at the stages of policy formulation, implementation and enforcement.

At the policy formation stage, both the State Government and Opposition have been reluctant to levy greater licensing fees or raise the levels of fines imposed on illegal pollution, for fear of damaging local competitiveness

[FOOTNOTE] Birrel, Mark, Shadow Minister for the Environment (Victoria), Personal Communication, 6/9/1990.
Ansell, Kay, "Competitive edge to environment concern", The Age, 15/6/1990.. Further, the
body charged with primary responsibility for implementing environmental policies, the E.P.A., is widely perceived as understaffed and underfunded
[FOOTNOTE] Marlow, John, Environmental Economics Consultant, Greenpeace, Personal Communication, 24/8/1990.. Hence, the Victorian Auditor[a]General Mr. Chez Baragwanath has stated that the authority has been unable to fulfil a large range of its assigned tasks
[FOOTNOTE] Kiely, John, op.cit..
The consequence of such underfunding, according to the Australian Conservation Foundation, is that industry has longS been aware that the likelihood of excessive emission being detected is minimal
[FOOTNOTE] Brotherton, Peter, Executive Member, Australian Conservation Foundation, Personal Communication, 24/8/1990.. Even where violations have been
discovered, the enforcement process has been deficient. In the vast majority of cases the courts have been reluctant to impose anything other than minor penalties. Thus in 1989 Gaffney's Creek Goldmining discharged up to 1.5 million gallons of cyanide contaminated gold tailings into Raspberry Creek, killing fish and severely polluting the water
[FOOTNOTE] Environmental Protection Authority, contaminated sites register.
. The
Mansfield Magistrates' Court imposed a $2,000 good behaviour bond, which an E.P.A. spokesperson described as:
"A decision not untypical of the attitude displayed by Victorian Court to toxic waste cases."
[FOOTNOTE] Burbury, Jan, op.cit.
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Our second hypothesis, is that given its failings, the current legal regime for controlling industrial waste should be replaced by one based on "pollution taxes" or "emission

charges".

The Commission for the Future suggests three general approaches to solving problems of toxic waste [FOOTNOTE] Commission for the Future, "A Sustainable Future for Australia", appendage to Our Common Future, Melbourne, Oxford University Press, 1990, pp.32 33.. The creation of private property rights in natural resources; regulation, the current system used to control pollution in all States other than New South Wales; and market incentives. It is in this latter category of market incentives that we suggest our response to toxic waste be based. We would contend that the pollution tax, although limited in its application, offers a legal response which will decrease levels of intractable waste. As well, it offers a substantial solution to theQ funding problems faced by environmental authorities throughout the country.

Our final hypothesis, it that contrary to the fears raised by Dr Brian Robinson [FOOTNOTE] Robinson, Brian, Chairman Environment Protection Authority, Personal Communication, Victoria, 19/3/1990. , volumetric emission charges may be imposed by the States without breaching section 90 of the "Commonwealth Constitution", or by the the Commonwealth without exceeding the scope of its powers under Section 51 of the "Constitution". At a State level, we would argue that the character of an emission charge is such that it is not a tax for the purpose of section 90, and that even if such a charge is a tax, then it is not an excise tax. Despite the constitutional argument, the term "pollution tax" will be used interchangably with "emission charges", as both phrases are widely used in the literature to describe the same instrument.

Within the context of the constitutional status of pollution taxes, we would suggest that the optimal Federal balance of control over air and water resources is one in which the States enact uniform legislation. This is in preference to the Commonwealth itself undertaking to enforce discharge standards, and thus replicating the functions currently exercised by State environmental bodies.

Although we propose that market based incentives and disincentives should form the basis of our legal strategy for decreasing industrial waste, it is not the purpose of this paper to examine all the potential economic instruments which may be used to achieve that end. In consequence, we will confine our focus to the application of one particular instrument, the pollution tax, to the Australian legal system. Additionally, unlike instruments such as tradeable emission rights or "Bubble" permits, there has been relatively little scholarship about the introduction of emission charges into Australia.i
Before arguing these hypotheses, it is necessary to examine the current literature which explores the relative efficiency of regulatory and market based mechanisms.

1.3 LITERATURE REVIEW.

Most literature which examines the role of economic instruments in waste management has focussed on the economic operation and effect of taxes, charges and permits. Throughout the 1970s there was a succession of papers from P.A. Victor

[FOOTNOTE] Victor, P.A., Economics of Pollution, London, Macmillan, 1972. , A.V. Freeman!

[FOOTNOTE] Freeman, III, A.M, Haveman, R.M and Kneese, A.V., The Economics of Enivironmental Policy, New York, John Wiley and Sons, 1973. , W.J. Baumol"

[FOOTNOTE] Baumol, W.J. and Oates, W.E, The Theory of Environmental Policy, New Jersey, Englewood Cliffs, 1975. , D. Dewees#

[FOOTNOTE] Dewees, D., "Economic Evaluation of Air Pollution Control", in The Potential Application of Economic Incentives to the Control of Pollution: the Case of British Columbia, Vancouver, University of British Columbia Press, 1977. and

other authors, each of whom explained the essential economic features of emission charges. However, there has been very little analysis of the legal structures required to effect pollution charges, both overseas, and in particular within the Australian context.

Where the legal characteristics of a pollution tax have been investigated, the analysis has tended to fall into two categories. First, there are works such as those by Robert Stavins

[FOOTNOTE] Stavins, Robert, Innovative Policies for Sustainable Development in the 1990s: Economic Incentives for Environmental Protection, Prepared for UN Environmental Protection Agency Workshop on the Economics of Sustainable Development, 23/1/1990.

Stavins, Robert, "Previous Use of Economic Incentive for Environmental Protection", Environment, January/February 1989, p.6., David Pearce%

[FOOTNOTE] Pearce, David, "Economics and the Global Challenge", Prepared for a special edition of Millenium Journal of International Relations to be published in December, 1990.

Pearce, David, Barbies, R., Edward and Markandya, Anil, Sustainable Development and Cost Benefit Analysis, prepared for Canadian Environmental Council workshop on Integrating Economic and Environmental Assessment, 17/11/1988., Jean Phillipe Barde&

[FOOTNOTE] Barde, Jean Phillipe, "The economic approach to the environment", O.E.C.D. Observer , No.158, June July 1989, p.12. and the<

O.E.C.D.'

[FOOTNOTE] OECD, "The Application of 'P.P.P' to accidental pollution", Environmental Policy and Law, September 1989, p.162. itself, which concentrate on the philosophy of using market incentives rather than regulatory measures to control industrial pollution. Secondly, a number of authors including the Dutch researchers Opschoor and Vos("

[FOOTNOTE] Opschoor, J and Vos, B, Economic Instruments for Environmental Protection, Paris, OECD, 1989. , Robert

Hahn) (
[FOOTNOTE] Hahn, Robert W., "Economic prescriptions for environmental problems: how the patient followed the doctor's orders", Journal of Economic Perspectives, Vol 3 ,No.2, Spring 1989, p.95. and Professor Brown*2
[FOOTNOTE] Brown, G and Bressers, J., Evidence Supporting Effluent Charges, Twente University of Technology, September, 1986. have examined the legal structures and effectiveness of volumetric pollution charges already in operation in Europe and the United States.

Amongst many commentators there is a sharp disagreement about the legitimacy of a Government tailoring its legal system to accomodate polluters, by placing a charge, but not a prohibition, on their activities.

Advocates of emission charges such as David Pearce suggest that regulations are inadequate as a means of controlling pollution because of their revenue inefficiency. Further they require constant supervision which is beyond the capabilities of most environmental authorities. Regulations are also criticised because they fail to provide a "systematic,6: continuing incentive", to decrease toxic waste or search for new technologies+
[FOOTNOTE] Pearce, David, op.cit., pp.18 19. .

The foundation of a pollution tax according to the Danish analyst Professor Hansmeyer is that it allows for the costs of pollution to be borne by the producer:
"The 'polluter pays' principle... has rightly been adopted as the basis for the attribution of costs in the field of environmental policy... [now] a mechanism must be found to bring about this process of internalisation... as it were simulating the absent market mechanism.,
[FOOTNOTE] Hansmeyer, K., "Polluter Pays V Public Responsibility", Environmental Policy and Law, Vol 6, 1980, p.23.

Put simply, the proponents of a pollution tax (or other economic instruments) argue that at present, pollution is an inevitable by product of industrialized living-
[FOOTNOTE] Stavins, Robert (1990) op.cit., p.3. . Hence, Robert Stavins.
[FOOTNOTE] Stavins was the Editor of Project 88, Harnessing market forces to protect our environment: Incentives for the new President, A public policy study sponsored by Senator Timothy E. Worth, Colorado and Senator John Heinz, Pennsylvania; December 1988. suggests that the issue is subsequently one
of how best to limit pollution. He concludes:
"The approach that seems most promising is one of harnessing market forces to spur both technological advance and sustainable management of natural resources. By channelling the forces of the market place into evironmental programmes, economic

incentive mechanisms can make the everyday economic decisions of individuals, businesses and government work effectively for the environment/
[FOOTNOTE] Stavins, Robert (1990) op.cit., p.4.

In conjunction with its avouched efficiency, those who champion the pollution tax also maintain that it is a morally appropriate mechanism of allocating costs, as theM" beneficiaries, that is the producers and consumers of the offending product, are compelled to bear the costs of their actions0
[FOOTNOTE] Barde, Jean Phillipe, op.cit., p.13. . Such is the force of these arguments, that the 'Polluter Pays Principle' has been approved by the World Commission on Environment and Development1
[FOOTNOTE] World Commission on Environment and Development, op.cit., p.265. , and expressly adopted by the Organisation for Economic Co Operation and Development 2

[FOOTNOTE] OECD, "Guiding Principles Concerning International Economic Aspects of Environmental Policies", Council Recommendation C(72)128, Paris, 26 May 1972..

There is a substantial body of critics who reject the principles which underly the use of economic incentives to control pollution. They fall within three groups. First, there is an industry perspective which argues that the whole community should pay the costs of preventing and repairing damage caused by commercial waste streams3
[FOOTNOTE] Clough, Michael and Wood, David, Environmental and Conservation Legislation and the Taxation System in Australia, Speakers Paper, Mallesons Stephen Jaques Seminar, "Environment and Industry", Melbourne, 10/9/1990, p.25. Bryant, Bob, Who Pays? Sanctions or Incentives, Speakers Paper Mallesons Stephen Jaques Seminar, "Environment and Industry", Melbourne, 10/9/1990, p.27.. A senior Melbourne tax lawyer, Michael Clough, summarises this view:
"The cost of protection to the environment should not be borne buy those sections of the Australian community which exploit it. This is because the exploitation of the environment either directly or indirectly benefits all Australians in the form of wealth creation."4$
[FOOTNOTE] Clough, Michael, op.cit., p.25. A

This view would seem flawed in its assumption that the community will benefit equally from wealth creation. This is particularly so given that small sections of society will frequently bear a disproportionate cost as they are directly exposed to heavily polluted air, water and land resources.I(The second group which opposes the use of economic incentives, rather than regulation, is comprised of various environmental organisations and other commentators, who argue that economic instruments implicitly condone the practice of polluting
[FOOTNOTE] Greenpeace, "No Time to Waste", Toxics Campaign, Melbourne, 1990, p.1. . According to Mark Sagoff there is great danger
in creating a mentality in which government accepts environmental damage as a recompensable activity6
[FOOTNOTE] Sagoff, Mark, The Economy of the Earth, Cambridge, Cambridge University Press, 1988, p.90. . This approach has been taken further by Friends of the Earth spokesperson Fran Macdonald who suggests:
"No amount of untreated toxic waste is acceptable. Government should not be condoning the use of instruments which allow firms to discharge pollution within the sanction of the law."7
[FOOTNOTE] Macdonald, Fran, Recycling Campaign co ordinator, Friends of the Earth, Personal Communication, 15/5/1990. A

Whilst the ultimate objective of zero pollution is laudable, the mere practice of enacting a prohibition has been rarely

effective without severe penalties, breaches of which are both difficult to detect and to enforce. Hence, many researchers including European Community Adviser Manfredo Macioti8
[FOOTNOTE] Macioti, Manfredo, "Industrial Redevelopment and a Sustainable Environment", The Practicing Manager, Winter 1990, p.36. , Pearce, Stavins and others who sympathise with the goal of zero pollution, still perceive economic instruments as the best means of achieving this end.

The third group which rejects the concept of using economic instruments as a disincentive to polluters, is led by ecologist David Suzuki. Suzuki has argued that:
"Government led attempts to control environmental damage will inevitably be half hearted."9
[FOOTNOTE] Suzuki, David, Public Lecture, Melbourne, 3/4/1990.AP

Hence he suggests that only voluntary consumer actions can lead to significant alterations in the pattern of consumption and therefore waste. His critcism of economics itself is even more scorching:
"Economics is so limited that it has no equation or factor for the value of an entire species!":
[FOOTNOTE] Suzuki, David, Inventing the Future: Reflections on Science, Technology and Nature, Sydney, Allen and Unwin, 1990, p.113. A

Although Suzuki has himself been criticised for exaggeration and distortion;

[FOOTNOTE] Nurick, John, "The Suzuki Method", Quadrant, June 1990, p.12.
Fraser, Rob, "Derailing the Suzuki Express", Quadrant, June 1990, p.14., the real flaw in this approach is that even where governments have been reluctant to galvanise their commitment with strong action, it would appear defeatist and inconsistent to ignore their potential to enforce successful pollution control mechanisms, as has arguably been the case in many Northern European States.

The other category of literature to that which deals with the philosophy underlying economic instruments, comprises those works which examine the practical and legal operation of pollution taxes. There is a reasonably comprehensive range of papers which analyse the performance of pollution charges applied in Europe and the United States. These authors, including the notable O.E.C.D. researchers Opschoor and Vos, mostly focus on the actual level at which the charges are set, the range of effluents to which they are applied and their progress in raising revenue and curbing pollution.

Whilst there is a recognition by Opschoor and Vos that there are at least five different forms of pollution or emissionV charges available for use by legislators<
[FOOTNOTE] Opschoor and Vos op.cit., p.15. The five types of charges identified are: Effluent charges, user charges,

producer charges, administration charges and tax differentiation.
See Chapter 5.2 for further explanation. , there is no discussion of which body should be given responsibility for setting the charge, nor any focus on what legal process should be followed to decide upon the optimal level of pollution. This dearth of material which focusses on the legal structure of pollution taxes, is replicated in assorted case studies of the taxes operating in Sweden=
[FOOTNOTE] Environmental Health Review (Editorial), "Environment Protection in Sweden", Environmental Health Review, September/October 1987, p.67., Norway>
[FOOTNOTE] Wheatley, Alan, "Sustainable Development Norweigan Style", Mining Review, May 1990, p.23. ,
Holland?
[FOOTNOTE] Hahn, Robert W., op.cit., p.107. and the United States@
[FOOTNOTE] Blinder, Alan, "How to cut pollution and the deficit at the same time", Business Week, 24/8/1987.
Main, Jeremy, "Here comes the big new cleanup", Fortune, 21/11/1988, p.50.
Business Week(Editorial), "Use Incentives to Keep the Environment Clean", Business Week, 19/12/1988, p.64. .

In the Australian context, there has been very little literature which has addressed the introduction of pollution taxes into either the State or Commonwealth legislative landscape. The economic features of an emissions tax have been outlined by Anthony ChisholmA.
[FOOTNOTE] Chisholm, Anthony, The Choice of Pollution Control Policies Under Uncertainty, paper presented to ANZAAS Conference on Environmental Studies, Canberra, 14/5/1988, p.6. and a recent Treasury paperB8
[FOOTNOTE] Department of Treasury(Commonwealth), "Economic and Regulatory Measures for Ecologically Sustainable Development Strategies", Unpublished Paper, June 1990. on "Ecologically Sustainable Development". In
neither case though, are the legislative framework or specific legal mechanisms canvassed.0@
The most comprehensive treatment of emission charges as an option for Australian environmental legislators, is the set of statements released by the New South Wales Ministry for the Environment, outlining the creation of three environmental trustsC
[FOOTNOTE] Moore, Tim, op.cit., pp.2 3.
Greiner, Nick, "Statement by Premier", State of the Environment, June 1990, No.6, New South Wales Government, Sydney, pp.3 4.
Ministry for the Environment(N.S.W), op.cit., pp.3 5.. These documents state that
volumetric waste charges will be used to raise money for the trusts. The bodies jointly responsible for setting and imposing the charges will be the State Pollution Control Commission and the Sydney Water BoardD
[FOOTNOTE] Moore, Tim, op.cit., pp.2 3. . Although much is covered in these statements, there is no reference to the Constitutional power under which such charges are levied.

Only the Australian Conservation Foundation in its submisison to the Commonwealth on Ecologically Sustainable DevelopmentE
[FOOTNOTE] Hare, W.L.(Editor) et al, Ecologically Sustainable Development: A Submission, Australian Conservation Foundation, Greenpeace Australia, The Wilderness Society, World Wide Fund for Nature, August 1990, p.63.
has, to our knowledge, focussed on the Constitutional ramifications of imposing emission charges. Even then, it only concluded that the Commonwealth had the capacity and the responsibility to exercise greater jurisdiction over environmental issues:
"There is a strong case for the application of existing Commonwealth powers to develop a more coherent approach to environmental, resource and energy policy in Australia. Many latent powers exist... which could enable the Commonwealth to develop a comprehensive array of environmental regulations and standards."F
[FOOTNOTE] Ibid, p.64. A

In short, whilst there is a considerable body of literature which focusses on the use of economic instruments to limitO pollution, there has been minimal examination of their legal ramifications and structure, or their application to Australian conditions G
[FOOTNOTE] Surprisingly, a survey of the EPA library failed to disclose any papers which scrutinise the use of emission charges or economic instruments in general. .

"1.4 SIGNIFICANCE OF THE PAPER.

This paper differs from the current scholarship on economic instruments, in that it seeks to investigate not only the possible structures a pollution tax may take, but also the legislative processes through which it must pass before it can operate successfully. In particular, the proposals for an environmental tariff are, to the best of our knowledge, unique H

[FOOTNOTE] Comments by both Professor Creedy (University of Melbourne) and Dr Alexander (Economist with the International Monetary Fund) suggest that neither has encountered the idea before, let alone a thorough treatment of it. . Hence the study is valuable if it can expand our
understanding of the legal features of instruments, which may be used to minimize industrial waste.

There has been, during the last decade, a significant growth in both local and international concern over damage to air, water and land resources. On a local level, the problems of chemical waste and storage in the western suburbs of Melbourne have challencged the notion that dangerous quantities of toxic waste are problems only confronting residents in other countries.

At an international level, concern about industrial effluents

and discharge has emerged in the wake of specific tragedies such as Bhopal and CubataoI
[FOOTNOTE] Elkington, John, op.cit., pp.108 109. , and as a response to threats of
global warming and ozone depletion.
TIt is then, in the context of parochial and global fears of toxic pollution that demands have arisen to control industrial emissions. These concerns exist because the current methods of controlling chemical waste have proved largely inadequate. Ad hoc attempts at improvement are being made, but there is a need for an overall review of approaches to the problem. The pollution tax is, we would argue, an integral part of any revision of our current legislative armoury.

No legal method, whether regulatory or incentive based can provide a complete solution to environmental problems or arguably any social imbroglio. There must be a committment by the community to change consumption patterns and expectations of what is acceptable behaviour. Polluters themselves must also be ready to accept that they have a responsibility to modify their conduct. Ultimately, legislation can only assist in bringing about changes which are integrally related to education and research. As Dr Brian Robinson suggests:
"All of the best laws in the world will not solve environmental problems unless the people who are responsible for the damage, are also willing to curtail those problems.
E

"(2. FLAWS IN THE CURRENT LEGAL REGIME FOR CONTROLLINGƒ
($POLLUTIONƒ

"Victoria's pollution control regime essentially involves three stages of operation. Initially, there is a process of policy formation in which the legislature establishes the objectives and the structures for minimizing hazardous waste. Secondly, these policies are implemented by the Melbourne and Metropolitan Board of Works and the Environment Protection Authority. The final stage of enforcement is the province of the Courts, as under the present legislative framework, breaches of M.M.B.W. by laws or the Environment Protection ActJ
[FOOTNOTE] Environment Protection Act 1970, (VIC), No.8056. must be determined in the Courts. If any of these three steps is flawed or weak, then the effectiveness of the entire process is undermined.

We would argue that there are in fact serious shortcomings in each of the three stages of regulatory action intended to restrict industrial waste within Victoria.

2.1 POLICY FORMULATION AND THE REGULATORY STRUCTURE.

There are a range of Acts which govern the State's appoach to pollution control. The two principal Acts are the Melbourne and Metropolitian Board of Works ActK
[FOOTNOTE] Melbourne and Metropolitan Board of Works Act, 1958 (VIC), No.6310. 1958(Vic), which establishes the M.M.B.W., and the Environment Protection Act 1970(Vic), which creates the Environment Protection Authority. They are supplemented by a number of amending and subsidiary statutes, the most important of which are: the Environment Protection (Industrial Waste) Act 1985(Vic)L

[FOOTNOTE] Environment Protection (Industrial Waste) Act 1985 (VIC) No. 10261. ,
the "Dangerous Goods Act 1985(Vic)M
[FOOTNOTE] Dangerous Goods Act 1985, (VIC), No. 10189. , the EnvironmentZ
Protection (General Amendments) Act 1989(Vic)N
[FOOTNOTE] Environment Protection (General Amendments) Act, 1989 (VIC), , the Port of
Melbourne Authority Act 1958(Vic)O
[FOOTNOTE] Port of Melbourne Act, 1958 (VIC), No.6312. , and the Pollution of
Waters by Oil and Noxious Substances Act" 1986(Vic).P

[FOOTNOTE] Pollution of Waters by Oil and Noxious Substances Act, 1986 (VIC), No.27.

"2.1.1 FUNCTIONS AND POWERS OF THE E.P.A. AND M.M.B.W.
Ultimate authority for the quality of Victoria's air and water resources resides with the E.P.A., which is charged with the task of overseeing "control of waste"Q
[FOOTNOTE] Environment Protection Act, op.cit., s.20. as well as ensuring the provision of "clean water"R
[FOOTNOTE] Ibid., s.38. , "clean air"S
[FOOTNOTE] Ibid., s.40. and
"control of solid waste"T
[FOOTNOTE] Ibid., s.44. . There is a notional separation of responsibility between the M.M.B.W. and the E.P.A.. The Board of Works has fiat over waste discharges which may enter the State's sewerage system or drinking water supply, whilst the E.P.A. is acountable for the quality of air, land and open water resources, including coastal waters within territorial boundaries. In practice, waste transmitted through the sewerage system frequently reaches open water. This underlines the point that there is often an overlap of responsibilities and jurisdiction.U"
[FOOTNOTE] Brotherton, Peter, op.cit.

Parliament regulates the objectives and functions of the E.P.A. through a legislative requirement that the Authority implement State environment protection policies(SEPPs). These policies are promulgated by the Minister for theE& Environment after public review and commentV
[FOOTNOTE] Environment Protection Authority (VIC), EPA: Protecting the Environment, 1990. . Thus as s.38 of the Environment Protection Act states:
"The discharge or deposit of wastes into waters of the State of Victoria shall at all time be in accordance with declared State environment protection policy, specifying acceptable conditions for the discharge or deposit of wastes into waters in the environment, and shall comply with any standards prescribed therefor under this Act."W
[FOOTNOTE] s.38 is replicated in s.40 and s.44 of the "Clean Air" and "Solid Waste Control" Parts within the Environment Protection Act. A

In order to pursue this goal, the E.P.A. is empowered to issueX
[FOOTNOTE] Environment Protection Act, s.20(3A). or refuse to issueY
[FOOTNOTE] s.20C(2). Licences may be refused if they are: (a) contrary to policy; (b) inconsistent with policy; (c) likely to cause or contribute to pollution; or (d) likely to cause or contribute to an environmental hazard. licences for the discharge of
industrial wasteZ
[FOOTNOTE] "Industrial Waste" is defined in s.4(1) as: "(a) Any waste arising from commercial, industrial or trade activities, or from laboratories; or (b) any waste containing

substances or material which are potentially harmful to humans or equipment." . It may also levy fees for the issue of licenses[*
[FOOTNOTE] s.24(2A). . Where there is a breach of a licence, or prescribed actions are conducted without authority, then the E.P.A. may revoke the permit\.
[FOOTNOTE] s.20C(2) ·, issue a pollution abatement notice]2
[FOOTNOTE] s.31A , and attempt to treat the source of the pollution itself.^6
[FOOTNOTE] s.62(1), s.62B. Polluters who breach the terms of their licence:
[FOOTNOTE] s.27(1A). ,.>
cause an environmental hazard`
[FOOTNOTE] s.27A(1) or abandon industrial wastea
[FOOTNOTE] s.27A(2).
may be prosecuted under the Act.

The functions and powers of the M.M.B.W. are similar to those of the E.P.A., although the former has more autonomy in defining acceptable levels of waste. Its specific functions include the teatment and collection of toxic materials, research into and construction of facilities for waste disposal and the sale of industial by products.b

[FOOTNOTE] Melbourne and Metropolitan Board of Works Act, s.314, paragraphs (a), (b), (c), (d) and (f) respectively. Importantly, under 5.315(2)(g) of the "M.M.B.W. Act, the Board amongst other things has power to set fees and charges for:
(i) inspecting, sampling, monitoring, testing or analysing waste;A
(ii) accepting waste having regard to its composition, characteristics, components or volume and requirements for storage, treatment and disposal;A
(iii) any advice or information provided by the Board; andA
(iv) any other service provided by the Board.

The conditions established by the E.P.A. and the M.M.B.W. for the storage and discharge of hazardous waste have not been without effect. In October 1990, two ICI chemical plants in Melbourne were closed after company officials claimed:
"... the cost of meeting stringent environment standards in a depressed economy is too high."c
[FOOTNOTE] Young, Leith, "ICI closes two chemical plants", The Age, 9/10/1990. A

Although some sectors of industry have protested at the effects on profitability of rigorous environmental standardsd
[FOOTNOTE] Ibid. , according to the Australian Conservation Foundation:V"The current regime has failed to deter numerous small business from dumping waste and has allowed dangerously high levels of toxic effluents to be

discharged upon payment of a licence fee."e
[FOOTNOTE] Brotherton, Peter, op.cit. A

"2.1.2 FAULTS IN THE REGULATORY PROCESS.
The combination of regulation and licensing is flawed in two ways. First, the level of charges and fines is not sufficient to act as a significant deterrent to companies. Secondly, the very nature of a licence fee is such that it encourages polluters to discharge waste up to a maximum level.

Despite promises to raise dramatically the scale of licence fees which the E.P.A. may levy, the Government has only recently amended the maximum fee of $16,000 per year for a waste discharge licence by raising it to $54,000f
[FOOTNOTE] Environment Protection Act, s.24(2A). . The reason for this reluctance may be ascribed to resistance from the Oppositiong

[FOOTNOTE] Brotherton, Peter, op.cit. , although that has not been fatal to such
proposals, and acceptance by the Government of submissions from business which claim that dramatic increases in licence fees would be fatal to the commercial viability of many firmsh
[FOOTNOTE] Marlow, John (Greenpeace), op.cit.
Macdonald, Fran (Friends of the Earth), op.cit.
Birrel, Mark, (Liberal Party), op.cit. . As already noted, a single licence may be used to
emit over forty pollutants if they are incorporated in the terms of the permiti
[FOOTNOTE] Kiely, John, op.cit.
Burbury, Jan, op.cit. .

The level of these licence fees has been described by John Marlow of Greenpeace as "thoroughly inadequate"j
[FOOTNOTE] Marlow, John, op.cit. , by FranO Macdonald of Friends of the Earth as "not high enough to have any effect"k
[FOOTNOTE] Macdonald, Fran, op.cit. , and by Peter Brotherton from the ACF as "no
deterrent at all"l
[FOOTNOTE] Brotherton, Peter, op.cit. . The Government itself has not intended
these fees as a disincentive to pollute, rather they were created as a means of raising revenue and offsetting the clean up costs subsequently borne by the E.P.A.. Hence, a maximum licence fee of $54,000 poses little disincentive to a polluter with a substantially greater budget, whilst contributing little to the costs of waste treatment annually incurred by the Authority.

The Melbourne and Metropolitan Board of Works also operates a licensing system similar to that used by the E.P.A.. There are five levels of fee which may be charged, although individual trade waste agreements are confidential and thus

cannot be scrutinized by the publicm

[FOOTNOTE] Marlow, John, op.cit. . In essence, the Board of Works' trade waste fees are bedevilled by the same basic problem as those of the E.P.A. as the levy neither deters pollution, nor recoups the cost of treating industrial waste.

Licence fees operate in conjunction with a system of fines. Within the past six months, the range of fines for breaching terms or acting without licences has been raised to $40,000 for individuals and $500,000 for companies in the most serious cases.n
[FOOTNOTE] Environment Protection Authority (Document No.5), op.cit. Such increases represent a dramatic reappraisal of the harm caused by unfettered toxic wastes, and an acknowledgement of the inadequacy of previous penalties. These imposts are however restricted in their effectiveness by resource limits on the detection capabilities of the E.P.A., and by the Courts' reluctance to order anywhere near the maximum penalty. In any event, they] do not affect the levels of waste which may legally be emitted under licence.

Even if a licence fee were to be substantially raised, there is still a fundamental flaw in its conception. As it is a fixed charge, it operates by allowing a polluter to emit waste up to a maximum level. There is no reduction in the price payed by a licensee if subsequent to the agreement, the waste emitted falls below the maximum discharge allowable. Consequently, there is no incentive for the producer to decrease waste below the maximum level stipulated by the licence, as the unused portion of the licence represents lost income. Admittedly, a finely graded licence system, if charged at a realistically high level, would provide polluters with a means of minimising their cost. This approach though adopts the central features of a volumetric emissions charge, and is akin to a pollution tax in all but name.

There has been growing recognition of the flaws in the present approach to pollution control by both the Government and Oppositon, within the Federal as well as State parties. At a Commonwealth level Resources Minister Alan Griffiths, in a rare show of agreement with Environment Minister Ros Kelly, acknowledged:
"The major problem with mandatory controls is that insufficient regard is generally taken of the costs of achieving environmental goals... It is practically impossible to devise regulatory measures which take costs into account in the same way that market measures allow individual producers to."o
[FOOTNOTE] Davis, Brent, "Canberra Starts to Change the Rules", Australian Business, 4/7/1990, p.53. A

Within Victoria, the State Government has mooted an increase in the maximum price of discharge licences to $300,000, thereby reaping an expected $4.23 million in additionald revenue per yearp
[FOOTNOTE] Young, Leith, "User Pays means a $63m boost", The Age, 30/8/1990. . Although this proposal repesents a radical increase in revenue potential, the total anticipated increase in revenue of only $4.23 million suggests that there can be no intent of charging the maximum fee in the majority of cases. When averaged out over the two thousand licencesq
[FOOTNOTE] Divecha, Simon, op.cit. issued by the E.P.A., this approximates to an
increase of little more than $2000 per licence holder.

The State Opposition has also signalled its dissatisfaction with regulatory measures, and a desire to adopt economic instruments to achieve environmental goals. Mark Birrel, the Opposition Environment shadow Minister has argued:
"In principle, the polluter (or any user) should pay for the outcome of his or her actions. In practice, given that most industrial polluters are attracted by profits, economic charges are more effective than the fear generated by prohibition."r

[FOOTNOTE] Birrel, Mark, op.cit. A

Regulation as a means of environmental control has been severly discredited. The inability of government to set charges at a level which will deter firms from polluting, has been exaccerbated by problems with the way in which a licence offers no incentive to decrease pollution below a maximum allowable level. In addition, acceptance by both major political parties of the need to introduce a user pays system, indicates that the present Victorian policy of regulatory control is fundamentally flawed.

"2.2 IMPLEMENTATION AND ENFORCEMENT OF GOVERNMENT ANTI[a]POLLUTION LAWS.
Irrespective of faults within the regulatory and licence systems themselves, their impact is also diminished greatly by obstacles at the implementation and enforcement stages. These restrictions on the effective application of currenta anti pollution laws are essentially caused by insufficient grants of resources and powers to environmental authorities and the difficulties encountered in prosecuting offenders through the court system.

"2.2.1 BARRIERS TO IMPLEMENTATION.
Both the Environment Protection Authority and the Board of Works have arguably suffered from a shortage of funds and absence of powers. The effect of this combination, has meant that in many cases the two bodies have lacked the funds and staff necessary to detect waste dumping and breaches of licence agreementss
[FOOTNOTE] Marlow, John, op.cit.. This is particularly so in the case of
the E.P.A.. According to one of its inspection officers:
"The Authority, despite claims to the contrary from its senior management, is woefully understaffed. During the week we cannot attend anywhere near the full number of sites about which complaints are made. On weekends, most companies have almost free reign to dispose of noxious waste without fear of detection.t
[FOOTNOTE] EPA Site Inspection Officer (wishes to remain anonymous), Personal Communication, 14/8/1990.

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Australian Conservation Foundation executive member and M.M.B.W. waste projects co ordinator Peter Brotherton has been even more critical of the funding allocated to the E.P.A. and the Board of Works.
"There is an almost total lack of resources available to the [environmental] regulatory bodies. The result, is that we have minimal funding for research and therefore no understanding of air pollution outside of the major metropolis. Nor are

we able to adequately discover or treat the burgeoning number of contaminated sites.u
[FOOTNOTE] Brotherton, Peter, op.cit.

A further indication of the paucity of funds available to the E.P.A., is the fact that the Authority collected onlyY $2.6million in fees in 1989. Its running costs for the same period amounted to $12.5millionv
[FOOTNOTE] Kiely, John, op.cit.. This is in contrast to the $17.5million. which the trade waste programme in New South Wales is expected to recover this yearw
[FOOTNOTE] Moore, Tim, (1990), op.cit., pp.2 3.. Although many of the costs incurred by the E.P.A. result from its educational and administrative functions, its overall revenue reflects a derogation from the polluter pays principle. Given that budgetary constraints only allow the E.P.A. to employ only thirty nine site inspectorsx

[FOOTNOTE] Kiely, John, op.cit., there is widespread acknowledgment from within the Authority that were more funds available, a great many more contaminated sites could be detected and treatedy
[FOOTNOTE] Environment Protection Authority (Vic), "Policing Industry is crucial", The Herald, 4/6/1990..

There are in essence two reasons why Victoria's environmental authorities suffer from insufficient funding. The first is that the State Government has refused to raise fiscal allocations to the E.P.A. and the Board of Works, by an amount concomitant with the increased responsibilities undertaken by these bodies in the past five yearsz
[FOOTNOTE] Brotherton, Peter, op.cit.. Under s.69 of the Environment Protection Act, charges levied by the E.P.A. are paid into consolidated revenue. There is, we would argue, a need to grant the E.P.A. control of funds it raises and to allow it to increase its charges in line with recommendations made by the authority itself{
[FOOTNOTE] As quoted in Kiely, John, op.cit.. If emission charges equivalent to even the fledgling system now being imposed in New South Wales were introduced, then the prospect of fully self funded environmental agencies would become tangible.
TThe second reason why at least the E.P.A. has had limited funding, is because of bureaucratic inefficiency within the Authority itself|
[FOOTNOTE] Ches Baragwanath in Kiely, John, op.cit.
Birrel, Mark, op.cit.. The Victorian Auditor General Ches Baragwanath concluded that:
"E.P.A. renewal notices for more than 500 licences, with fees exceeding $375,000 were not issued over the past two financial years. Licence revenue actually dropped from $2.8million in 1987 88 to $2.6million in 1988 89 ... The Authority failed to charge interest on fees overdue and some licensees were told five years ago that they were exempt for

fees, which was wrong.

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This criticism is supported by Mark Birrel, who suggests that:
"The Environment Protection Authority is a poor prosecutor and a poor policeman.}
[FOOTNOTE] Birrel, Mark, op.cit.

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The E.P.A. blames "the poor performance of the Government computing service~
[FOOTNOTE] Kiely, John, op.cit." for faults in revenue collection. However, even if the Authority is responsible for a loss in potential revenue, that loss appears minimal at most. In any event, it has been the experience in Europe that income raised under a regulatory system which is performing optimally, is still short of the sums garnered through the introduction of economic instruments□
[FOOTNOTE] Pearson, M and Smith, S, "A Greener budget", The Economist, 17/1/1990, p.53..

Management in both the E.P.A. and the Board of Works are generally satisfied with the range of legal powers they have been granted so as to pursue their objectives
[FOOTNOTE] Robinson, Brian, op.cit.. Reforms made under the Environment Protection (General Amendment) Act T 1989 (Vic) have expanded and increased the body of powers available to the E.P.A.. Specific amendments include the creation of new offences for non compliance with State environmental protection policies and for misrepresenting the results of self monitoring
[FOOTNOTE] Environment Protection Authority (Vic), "Amended Act provides new powers", EPA Review, Autumn 1990, p.3, (EPA Document No. 4)..

The E.P.A. however is likely to be denied some key powers sought by the Authority in its "Draft Industrial Waste Management Policy on Waste Minimization"

[FOOTNOTE] Environment Protection Authority (Vic), Draft Industrial Waste Management Policy on Waste Minimization, Environment Protection Authority, Melbourne, April 1988, (EPA Document No.1). Those powers
include authority to levy unlimited charges commensurate with the total cost of damage caused by illegaly discharges
[FOOTNOTE] Clauses 28 and 29.,
and the ability to compel firms to install "best available technology" for the treatment of priority wastes
[FOOTNOTE] Clause 22..

"2.2.2 ENFORCEMENT.

Even where the resources and powers available to the E.P.A. and the Board of Works are sufficient to detect illegal discharges of industrial waste, there is great difficulty in prosecuting offenders. The nature of the court system is such that prosecution is both timely and expensive. Litigation frequently results in an acquittal or the imposition of a penalty which is regarded by the prosecutees as paltry [FOOTNOTE] Initially typed as poultry. Fines have also been described in this way by both prosecutors and offenders!.

The process of bringing a court action to enforce environmental regulations is hindered by the slow pace of enforcement and blighted by the inadequate resources available to the court. Waiting time for prosecutions isN" generally about three months, and may be more [FOOTNOTE] EPA (Document No.4), op.cit., p.5.. Although such a delay is minor in comparison to many private suits, it still represents a considerable time during which offences may pass unpunished and offenders generally remain undeterred.

"Difficulties in obtaining prosecutions.
More significant than time delays experienced in prosecution, is the incapability of the courts to oversee and enforce environmental regulations. The vast majority of actions for breach of the Environmental Protection Act or M.M.B.W. by-laws are commenced in the Magistrates' Court [FOOTNOTE] Ibid.. In that jurisdiction problems of resources are particularly severe and many of the cases heard are far more complex and prolonged than those normally heard by magistrates. There is in fact a recognised practice of "case shuffling" from senior to junior magistrates when faced with major industrial waste prosecutions

[FOOTNOTE] Defendant's solicitor in EPA Prosecution, Personal Communication, 11/8/1990 (wishes to remain anonymous)..

Beyond any question about the ability of individual magistrates to preside over waste cases, is an issue of the suitability of the court system itself as a means of upholding environmental regulations. Michael Barker has argued that the courts are inflexible in their interpretation of legislation before them, and have failed to give regulations their intended effect [FOOTNOTE] Barker, Michael, "Environmental Quality Control: Regulations or Incentives?", Environment and Planning Law Journal, September 1984, pp.226 227.. Stewart and Krier are more trenchant in their criticism of the judiciary as an environmental policeman:
"The Courts suffer severe shortcomings with respectT to inquiry initiation, comprehensive oversight, continuing administration and fiscal powers.

[FOOTNOTE] Stewart, R. and Krier, J., Environmental Law and Policy, 1978, p.325.

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The structure of the court system to which Stewart and Krier refer, has been translated into the practical difficulty which the Environmental Protection Authority and the Board of Works have faced in obtaining prosecutions.

The case recently mounted by the E.P.A. and the M.M.B.W. against Harrington Metal Recyclers

[FOOTNOTE] Athersmith, Fiona, "Toxic dumping case scandalous says QC", The Age, 7/8/1990. is an example of the complexity of prosecution. Evidence was led that the accused had discharged one thousand litres of concentrated chemical waste into the sewerage system through an open cystern

[FOOTNOTE] Athersmith, Fiona, "Toxic chemicals poured down toilet, Court told", The Age, 8/8/1990..
The magistrate accepted that the facts had been proved. However, he struck out the separate charges relating to each chemical and reduced the case to a single offence of discharging waste

[FOOTNOTE] Athersmith, Fiona, "Toxic Waste Case man 'sorry' for being caught", The Age, 9/8/1990. He subsequently dismissed that charge on
the basis that the legislation only applied to occupiers who release toxic wastes and not non occupiers
[FOOTNOTE] Athersmith, Fiona, "Waste discharge laws deficient, magistrate", The Age, 10/8/1990.. As it was a
non occupier who dumped the waste, the occupier could not be prosecuted despite having consented to the act. Ironically the actual polluter, as he was a non occupier could not be the subject of charges under the by law"
[FOOTNOTE] Ibid.. This finding wasB&
made despite the Magistrate's conclusion that the result represented "an outrageous state of affairs
[FOOTNOTE] Ibid.".

The above case is symptomatic of the problems which confront prosecutors. It must be stated however that the E.P.A. and the Board of Works are not themselves without blame.

The Magistrate in the Ë

ËHarrington caseË

Ë stressed that poorly
drafted M.M.B.W. by laws created the anomaly in the law, which he was then bound to follow
[FOOTNOTE] Ibid.. Further, the competence
of the E.P.A. in bringing prosecutions has been severely criticised by the Victorian Opposition

[FOOTNOTE] Birrel, Mark, op.cit.. Nevertheless, the Authority claims to achieve a high rate of success in its prosecution
[FOOTNOTE] Brian Robinson has claimed that the EPA has a 96% success rate with prosecutions, although this figure seems inflated given that many convictions only result in good behaviour bonds, which are treated by the EPA staff as failures., and its real dissatisfaction and that of many observers, is with the leniency of the penalties imposed when charges are upheld
[FOOTNOTE] Burbury, Jan, op.cit..

"Inadequate fines and penalties when prosecutions are completed.
The sanctions imposed by the courts for illegal waste disposal have been savagely criticised by the environmental movement:
"The Courts have been disgusting. Punishments are

far too low. The chances of having them impose anywhere near the maximum penalty on any major case are virtually zero.
[FOOTNOTE] Brotherton, Peter, op.cit.

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FJ$The average fine imposed in prosecutions brought by the E.P.A. is $2,000 and there have been no instances yet of maximum penalties being imposed under the 1989 Amendments to the Environment Protection Act
[FOOTNOTE] Marlow, John, op.cit.. Already this year the E.P.A. has appealed against the leniency of penalties imposed on two cases of major industrial pollution
[FOOTNOTE] The initial prosecutions were against Gaffney's Creek Goldmining Ltd and Petroleum Refineries Australia Ltd.. Penalties were
less than $2,000 for breaches which involved dangerous transport of hydrocarbons, an oil spillage and the discharge of cyanide

[FOOTNOTE] Burbury, Jan, op.cit..

One of the problems encountered by magistrates who preside over environmental cases is that the penalties which they may hand down are far greater than those normally within their jurisdiction. Hence there is an understandable reticence to impose fines in excess of $10,000 let alone the $500,000 which they are empowered to order in cases of aggravated pollution
[FOOTNOTE] Marlow, John, op.cit.. Birrel's suggestion that "the Courts do not
have a conspiracy with polluters" would seem an accurate assessment
[FOOTNOTE] Birrel, Mark, op.cit.. The real problem lies in a judicial culture
which has to date been incapable of exercising powers of a greater magnitude than those with which they were previously vested.

It is not surprising that when faced with the difficulties of court actions, both the E.P.A. and the Board of Works have been reluctant to embark on prosecutions or appeals. The costs of litigation are prohibitive in cases where there is contested scientific evidence, and the prospect of defeat or an unsatisfactory penalty have deterred each body fromT pursing many cases within the Courts. As a spokesman has commented:
"There is great concern within the M.M.B.W. about the costs of preparing for court action, because the case may be thrown out on a technicality or because the penalties are so limited.
[FOOTNOTE] Brotherton, Peter, op.cit.

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We would argue that court enforcement has been a highly unsatisfactory means of ensuring compliance with environmental policies and goals. This does not mean that the standard of proof required to confirm an offence should be lowered or that the onus of proof should be reversed as each of these actions carries serious jurisprudential consequences. Nor is there value in blaming either the courts or the prosecutors for a failure to convict or adequately punish transgressors. The substantial problem with prosecution, is that the court system, because of its resources, its adversarial nature and its culture is simply not amenable to enforcing an environmental regime.

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In summary, we would argue that Victoria's current legal approach to controlling industrial pollution has been unsatisfactory. The regulatory system is fundamentally flawed. In its conception, the combination of licensing and prohibition, does not act as a significant deterrent to

potential polluters. At the implementation stage, a shortage of funding has hampered the environmental authorities. Finally at the point of enforcement, Courts have demonstrated a reluctance to convict or to impose the penalties available under the regulatory system.

It is then appropriate, to consider the alternative of a pollution tax as a means of overcoming the problems encountered in regulation.g

("3. OPERATION OF THE POLLUTION TAX.ƒ

"3.1 SHOULD THE MARKET OR THE LEGISLATURE DECIDE WHAT LEVEL OF POLLUTION IS ACCEPTABLE?

"As commonly put forward the pollution tax involves setting a charge equal to the damage caused by each level of pollution"
[FOOTNOTE] Professor Treblecock, Personal Communication, 13/6/1990. .A

This concept, which has its intellectual foundations in the work of Arthur Pigou
[FOOTNOTE] Bannock, G., Baxter, R.E., and Rees, R., Dictionary of Economics, Harmondsworth, Penguin Books, 1985, p.164., revolves around the notion of
externalities and a desire to make companies pay the true cost of their production
[FOOTNOTE] Hirshleifer, J., Price Theory and Applications, Englewood Cliffs, Prentice Hall, 1984, pp.486 487..

A legal regime that embodies a pollution tax operates by placing a charge on each unit of waste emitted by a firm. The primary effect of such a tax is to act as an incentive by encouraging companies to decrease discharges of pollutants to the extent that it is less costly to treat them than to meet the tax bill. This is best illustrated by a simple example. A firm is disposing of its mercury into a river. A tax is set at $1 for each unit of mercury released. It only costs the firm 80 cents a unit in improved effluent controls to reduce the amount of mercury it is discharging. The least costly of these two options is to reduce its output of mercury.

Under this legal structure the firm will continue to decrease pollution until the marginal benefit (the decrease in pollution) equals the marginal cost (the cost of pollutionT reduction)
[FOOTNOTE] Freeman III, A.V., Haveman, R.M., and Kneese, A.V., The Economics of Environment Policy, New York, John Wiley and Sons, 1973, p.87.. This market determined level of pollution thus represents the socially optimal level of pollution

[FOOTNOTE] Victor, P.A., Economics of Pollution, London, Macmillan, 1972, pp.20 21..
Economists make this assessment on the basis that it is the pareto optimal solution, which means that no further change can be made to improve the condition of one section of society without making another bear the cost of these changes!
[FOOTNOTE] Ibid..

"3.1.1 FAULTS IN THE TRADITIONAL CONCEPTION OF A POLLUTION TAX.
Fundamental problems exist, in following an approach which attempts to calculate the damage done by pollution in monetary terms. They may be summarized as difficulties arising from pricing environmental damage, establishing the

degree of the damage and the philosophical problem of sanctioning damage. A consideration of these problems is critical because such regimes remain the dominant approach to economic mechanisms for controlling pollution. In the Business Council of Australia's recent discussion paper which examined market based options for controlling environmental damage, the entire debate was conducted in terms of pricing the environment in one form or another"
[FOOTNOTE] "Achieving Sustainable Development", Business Council Bulletin, August 1990, pp.18 20..

The first major difficulty encountered in pricing the cost of environmental damage caused by pollution is ascribing a value to non pecuniary loss. It is possible to calculate the pecuniary losses such as increased health care costs and lostN productivity that result from pollution#
[FOOTNOTE] O.E.C.D. Report: Economic Measurement of Environmental Damage, op.cit., p.6

. However, there is
a vast range of costs not amenable to financial valuation such as the effect on peoples' health or on the loss of human heritage which occurs, for instance, when acid rain erodes the facade of historic buildings$

[FOOTNOTE] Hollick, M., "The design of environmental management policies", Environmental and Planning Law Journal, 1984, p.65. The conundrum of trying
to reckon in dollar terms the losses to future generations of permanent environmental damage or the loss of species is even more vexing%
[FOOTNOTE] O.E.C.D. Report, Economic Measurement of Environmental Damage, op.cit., p.8..

The second class of problems revolves around establishing the nature of a damage function. For many types of pollution this task is extremely difficult because of the complex interaction of pollutants with each other and with the environment&
[FOOTNOTE] Professor Treblecock, op.cit.
. Functions, when they can be determined are often not linear but quite irregular'
[FOOTNOTE] Ibid.. This results from the phenomenon in which some natural environments are able to tolerate increasing levels of pollutants until a critical level, at which point when the damage then suddenly increases("
[FOOTNOTE] Ibid.. A process of this type may occur a number of times before a section of the eco system has been environmentally exhausted.

These measurement difficulties have been a substantial barrier to the implementation of the pollution tax. Bromley argues that because of the doubts created about the cause, effect and measurement of externalities, attempts toK& internalize these externalities have been stifled)
[FOOTNOTE] Bromley, P., Natural Resource Economics: policy problems and contempory analysis, Boston, Kluwer Nijhoff, 1986, p.45..
Subsequently, introduction of emissions charges has been delayed in many states, and the costs of industrial pollution have been borne by neighbouring communities. This has occured whilst industry has called for further research into the appropriate levels at which the tax may be set*

[FOOTNOTE] Ibid.. Given that a solution is not likely to be readily found to these problems+
[FOOTNOTE] O.E.C.D. Report: Economic Measurement of Environmental Damage, op.cit., p.7., the demands for a precisely calibrated tax, if
successful, would make the introduction of this form of pollution control very difficult.

The final problem is a philosophical one. A legal regime of pollution control which determines the damage caused by pollution in monetary terms, arguably places economics in an unduely exaulted position in the political system. By quantifying the damage, economics is given the role of deciding what is the acceptable level of pollution. Mark Sagoff in his book The Economy of the Earth,

[FOOTNOTE] Sagoff, M., op.cit., argues strongly against giving economists such a role. While some elements of his work have been attacked-
[FOOTNOTE] Rose, C.M., "Environmental Faust Succumbs to Temptations of Economic Mephistopheles", or, Value by Any Other Name is Preference, Michigan Law Review, Vol.87, pp.1631 1646., his criticism of the overly dominant role of economics in decision making has been well supported."
[FOOTNOTE] Stone, C.D., Environmental Ethics Vol.10, No.4, Winter 1988, p.363.. His primary argument is that social legislators should not be dominated by economic analysis. This undermines the political process by unduely restricting the values which maybe considered in making environmentalH(decisions. Sagoff perceives a great danger in trying to price the environment, as doing so hides other values, such as beauty, which should be considered separately. A key part of his criticism of economics is that it offers a very narrow set of human assumptions on which decisions are made.

"3.1.2 A BETTER ALTERNATIVE FOR IMPLEMENTING THE TAX.
These problems strongly suggest that a different legal system of implementing the tax is required. The difficulties of the traditional system essentially arise from allowing the market to determine what is the acceptable level of pollution.

The alternative legal structure lets the political system rather than the market determine the desirable level of pollution and then sets the charge to acheive that level/
[FOOTNOTE] Baumol, W.J. & Oates, W.E., The Theory of Environmental Policy, New Jersey, Englewood Cliffs, 1975.. This system recognizes the inherent impossibility of placing a monetary value on environmental damage and therefore acknowledges the artificiality of a decision making system that uses such a fiction as its base. Instead, the alternative legal regime recognizes that in a democratic system it is the political process which should be used for a resolution of conflicting priorities.

Once the debate as to the desireable level of pollution is in the political arena, it is of no consequence that the damage caused by pollution may not be measured in exclusively economic terms. The function of the political system itself is to determinine the priority of objectives which cannot be assessed by the same measure. This approach also answers the concern that the values of an unduely narrow section of the population, economists, will determine what is the acceptable level of environmental quality.

The question then becomes: what role should economists have in the decision making process? Sagoff goes so far as to say that they should have none at all. His fear is that theiri model of analysis will continue to provide the paradigm for political decisions0
[FOOTNOTE] Sagoff, M., op.cit., pp.101 102.. However, as Professor Creedy points out, there is considerable danger in excluding economists

entirely, as politicans are frequently incapable of determining the economic consequences of decisions without assistance1

[FOOTNOTE] Professor Creedy, Professor of Microeconomics, University of Melbourne, Personal Communication, 20/6/1990.. Further, he suggests that, economists can play a useful role, by helping avoid problems in the decision making process such as double counting2

[FOOTNOTE] Ibid..

Sagoff's fears of the dominance of economic concerns are probably less likely to be fulfilled as environmental groups multiply and their influence becomes more dominant within the political process. The number of political pressure groups with their major focus on industrial pollution is growing. In Victoria, local groups, such as the Hazardous Materials Action Group3
[FOOTNOTE] Colleen Hartland, Organizer, Hazardous Materials Action Group, Personal Communication, March 1990. This group was formed after a chemical fire at the United Transport Depot in Footscray during November 1988 and has been active ever since in contributing to public debate. and the Coode Island Interest Group, have
combined with major environmental organizations to ensure that toxic waste is assessed for its social as well as economic costs.

While a legal regime which sets the acceptable level of pollution by political rather than economic criteria has been discussed publicly from time to time since at least the late 1960s4
[FOOTNOTE] It was proposed by Bradley, P., in "Producers' Decisions and Water Quality Control", Pollution and Our Environment Conference and Background Papers III, Ottawa, Canadian Council of Resources Ministeres, 1967. , it has been given very much a secondary role in
both the economic literature and public discussion of pollution taxes. This is probably because the debate, overK& pollution taxes has occured largely in an economic context. In this debate, the process of politically determining the level of pollution has been criticised by people such as Professor Treblecock of Canada because it requires the implementor to know the pollution reduction cost function of firms, a difficult process which is not required by purely economic systems5
[FOOTNOTE] Professor Treblecock, op.cit.. Although this is a valid criticism, it
does not outweigh the system of a politically determined target level of pollution, as will be later discussed.

Even though the politically determined tax level does not see the solution to industrial waste management as resting solely with the market, it still attempts to impose the cost of their externalities on companies.

"3.2 THE ECONOMIC MEANS BY WHICH THE TAX REDUCES POLLUTION. We would advocate a system of emission charges in which the desireable pollution level is identified by the political process. The tax is then set so as to minimize waste to that level. This is in contrast to the pure operation of the market in which the charges are set to compensate society for the notional damage suffered. If an optimal level of pollution is sought as opposed to a sum for compensation, then the legislator must identify both the appropriate level

of waste and a charge scale that will reduce discharges to that amount.

The task of those implementing the legal structure, is to calculate the rate, so that at the desireable level of waste discharge, the tax will equal the cost of reducing pollution to that amount. This is the point at which firms will stop reducing pollution because there is no saving to be gained by further cuts.

There remains, however, an incentive to continue reducing emissions below the required level. This is because ai reduction in pollution below the required standard would mean a lower tax rate and therefore a decrease in production costs6
[FOOTNOTE] Victor, P., op.cit., p.41.. This in turn can be transformed into the
competitive advantage of a reduced price. Importantly therefore, a tax means that there is always an incentive to reduce pollution no matter how low the level of emissions7
[FOOTNOTE] Dewees D., op.cit., p.253..

"3.2.1 EFFECT OF THE TAX ON INDIVIDUAL FIRMS.
Before investigating how the tax is calculated it is necessary to examine the process by which companies will reduce their pollution emissions in order to ease their tax bill. There are two ways this abatement will occur. First, firms will develop new technology and new production processes that will enable them to reduce pollution emissions. Secondly, firms will cutback production and in so doing limit their pollution output.

Victor suggests that firms have two main avenues by which they may alter their production processes:
"they can treat the offending effluent before it is dischaged or change the production technique they are using so that less effluent is produced"8

[FOOTNOTE] Victor, P., op.cit. p.39.. A

Other types of waste such as land contamination and air pollution must also be considered in the same way9
[FOOTNOTE] Nichols, A., Targeting economic incentives for environmental protection, London, MIT Press, 1984, p.27.. The treatment of effluent may also involve recovery of materials from waste streams and recycling:
[FOOTNOTE] Freeman III, A.V. et al., op.cit. p.97.. In some industries where
there is in an inherent value in what would otherwise be pollution, this already occurs. A good local example can be found in the printing industry. Liquid waste containingW silver is stored and the silver along with other valuable base metals is recovered.

Many Melbourne engineers will readily admit that most production process which produce toxic by products do have viable alternatives;

[FOOTNOTE] Richard Robinson, risk consultant with Robinson and Viner, risk consultants who specialize in advice to the the petro chemical industry, 25/7/1990.. An example frequently pointed to is
where industry has found alternatives to the use of the highly toxic polychlorinatedbiphenyls (PCBs) in producing products such as electrical insulation<

[FOOTNOTE] Ibid.. Dr. Carolyn Rolls,
a research chemist with I.C.I. supports this conclusion. She has expressed the view that there are either existing or theoretical production process which can replace the most damaging industrial techniques currently used by the chemical industry=
[FOOTNOTE] Rolls, Dr Carolyn, Reseach Chemist I.C.I, Personal Communication, 25/7/1990.. It is also her view that the processes for which
it was hardest to find alternatives were those involving the use of heavy metals>
[FOOTNOTE] Ibid..

The tax regime thus acts to encourage firms to realize that pollution is best seen as a factor of production and that existing techniques may be replaced by others which produce less waste?
[FOOTNOTE] Fisher, A.C., Resource and Environmental Economics, Cambridge, Cambridge University Press, 1981, p.166..

"The incentive for research and development.
An attraction of a pollution tax regime is that it produces a strong incentive for firms to engage in research and development@
[FOOTNOTE] Victor, P., op.cit. p.41.. Some companies will find that the cost of
research and development into pollution reducing productionN" processes is a less costly option than continuing to pay the taxA
[FOOTNOTE] Dewees, op.cit., p.253.

Other firms will discover that if they are successful in their programmes, they may produce a price reduction which cannot be matched by competitors as they will not have access to the technology. In many industries price reductions will lead to an increased market share and increased profits. This incentive will continue to operate even after companies have achieved the desired level of pollutionB
[FOOTNOTE] Victor, P., op.cit., p.41..

Freeman, Haveman and Kneese have argued that firms which perceive the potential for substantial benefits from research and development will have a strong motivation to bear the short term costs involvedC

[FOOTNOTE] Freeman III, A.M., Haveman, R.M. and Kneese, A.V., The Economics of Environment Policy, New York, John Wiley and Sons, 1973, p.98.. Once some firms within a
particular industry begin research and development schemes,

others are likely to follow simply to remain competitive. Hence the introduction of emission charges has acted as a catalyst for enforced research programmes by many European firmsD
[FOOTNOTE] Barde, J.P., Art 05, p.5

One apparent disadvantage in the incentive for individual firms to develop pollution reducing technology is that it will not be shared. The reality is that if it were not for the incentive provided by the waste charges, it is far less likely that pollution reducing research would have been engaged in. Concerns that pollution reducing technology will not be shared may not be valid anyway. The conversion of pollution abatement technology into a valuable commodity hasT meant that a market has emerged for its distributionE
[FOOTNOTE] Ansell, Kay, "Competitive edge to environmental concern", The Age, 15/6/1990..
Firms have been established to take advantage of this market opportunity by developing least cost emission control systems.

"Reduced pollution through reduced production.
The second means by which a legal system employing a pollution tax will reduce emissions is through a decrease in the production of the good which generates the pollutionF
[FOOTNOTE] Nichols, op.cit., p.27..
If production processes are made more expensive by the imposition of the tax and the requirement for firms to introduce pollution reduction measures, these new costs will be passed onto consumers in the form of price increasesG

[FOOTNOTE] Freeman III, A.M., et al., op.cit., p.97..
Consumers responsiveness to the price change will determine the degree to which production has to be cut back by the firmH
[FOOTNOTE] Ibid. p.145.. If the product is an essential one, then it is likely that demand will be inelastic and the fall in production will be small. If the demand for the good is elastic then a substantial fall in production will probably follow.

A multiplier effect may also operate. If there is considerable elasticity of demand, a significant price rise will cause a major loss of demand and thus production. In turn this may lead to the loss of efficiencies gained from economies of scale. Further price rises would follow and lead to still greater reductions in production.

The tax will have the effect on the consumer of diverting their purchases to commodities with less seriousW environmental effectsI
[FOOTNOTE] Kneese, A.V., Economics and the Environment, Harmondsworth, Penguin Books, 1977, p.201.. This is because goods which do not
generate industrial waste in their production will become relative cheaper and therefore more attractive.

Producers may respond in three ways to a fall in production caused by greater emissions charges and therefore prices. First, firms will simply operate at a lower level of outputJ
[FOOTNOTE] Ibid. p.114..

Secondly, firms may stop producing the taxed good if they find it to be more profitable to switch to the manufacture of other products. The legal structure of the tax would therefore have to be broad based, so that companies could not gain a competitive advantage by manufacturing other equally damaging products which were not subject to the charge.

Finally, a fall in production, necessitated by decreased demand, may spur firms to try and recapture their lost markets by investing in research and development so as to reduce the volume and therefore the costs of their pollution emissionsK

[FOOTNOTE] Downing, P. & Hanf, K. (eds), International Comparisons in Implementing Pollution Laws, Boston, Kluwer^aNijhoff, 1983, p.148.. This in turn may ultimately decrease production costs, which could contribute to nullifying the initial cost increases caused by the charge.

"The need for competitive markets.
The success of the legal implementation of a pollution tax will be affected by the competitive nature of the industries on which it is imposed. In particular, the incentive for research will be lost in monopolistic industries and severely undermined in oligopolistic ones or where any form of price collusion is occurring.
]

"3.3 LEGAL STRUCTURE AND FEATURES OF THE TAX.

"3.3.1 THE LEGAL MECHANISMS REQUIRED FOR SETTING THE POLLUTION LEVELS.

If the tax is to be set by reference to desirable standards which group within the legislative process can best decide the acceptable level of industrial discharge? There is no literature on this question given the relatively marginal consideration given to this type of pollution tax.

The starting point for this discussion, is to remember that the objective of this type of charge is to ensure that emission levels are set at a standard acceptable to the community.

The first possibility is that Parliament may establish an initial acceptable level of waste. It could then be required to make periodic reviews of standards. Alternatively there could be an inbuilt automatic tightening of standards.

There are a number of general disadvantages in a system of setting standards that focuses on the legislature. First, the nature of the decision making process is not amenable to actually setting standards because of the fine detail involved. Secondly, members are simply not qualified in economic or environmental terms to be making such detailed decisions. Thirdly, the rigid party system makes it difficult for a real plurality of interests to be considered publicly, although the increasing cooperation displaced in joint committees may avoid this problemL
[FOOTNOTE] Powell, Janet, Leader of the Australian Democrats, Personal Communication, 25/10/1990.. Fourthly, it is very difficult to build into legislation mechanisms for preventing the legislature from loosening standards under pressure exerted by unfavourable economic conditions or lobby groups.

A second broad option is that the legislature could grant the executive, through the aegis of the Environment Minister, thei power to set acceptable waste discharge standards. The executive could do this at its own initative or after public hearing. Alteratively, the E.P.A. could set the standards itself or in a process also involving public hearings.

There are also serious disadvantages if the executive is to be given responsiblity for nominating the acceptable levels of pollution. Such a process would lack the authority of a legislative decision and therefore might, if the legislation allowed, be much easier to reverse for electoral reasons or when governments changed complexion. Further, unless there were public hearings the process could be dangerously secretive and therefore risk being subject to pressure by groups with disproportionate influence. Even a public hearing however is no guarantee of true pluralism. Finally, given the dominance of the economic analysis paradigm that exists within the executiveM
[FOOTNOTE] Ibid., economic facits may be unduely emphasised. However, the last two criticisms are not

applicable if public hearings are made mandatory and responsibility for establishing maximum discharge levels is given to the E.P.A,. As such this represents the most attractive legal framework on which a tax maybe based. The remaining problem is that executive actions are sometime perceived to carry less force than legislative enactmentsN
[FOOTNOTE] Tanner, Ted, Chairperson, Joint Parliamentary Natural Resources and Environment Committee, Personal Communication, 15/8/1990..
This criticism may be overcome by allowing the legislature a guiding role over executive action.

There are two principal options for parliamentary involvement when the executive is given the power to set standards. The legislature could establish the principles to be used in formulating the pollution levelsO
[FOOTNOTE] Birrel, Mark, op.cit.. For example they could specifiy that the primary consideration of the executive] should be to ensure a totally clean environment or alternatively standards must be set so as to prevent large scale unemployment of labour or capital. Additionally, these standards could be subject to Parliamentary review either in the legislature or in the committees.

In the case where the E.P.A. sets its standards after a public hearing, both of these options could be implemented. This approach is favoured by Ted Tanner, the Chairperson of the Joint Parliamentary Natural Resources and the Environment Committee. The legislature may set the terms of reference by which the E.P.A. conducts its public hearing and it could outline the values upon which the decisions have to be made. Once the levels had been set, as with all other subordinate legislation it would be subject to parliamentary review. An annual report outlining the decisions as to the target levels would necessarily need to include details as the environmental, social, health and economic consequences of the standards decided upon. Ideally, both houses would examine the legislation after recommendations from a committee such as the Victorian, Natural Resources and Environment Committee, for as Australian Democrat leader, Janet Powell and Ted Tanner noted, these committees often facilitate a bi partisan approach to policyP
[FOOTNOTE] Powell, Janet, op.cit.
Tanner, Ted, op.cit..
"

3.3.2 WHAT LEVEL OF INDUSTRIAL WASTE SHOULD THE GOVERNMENT DEEM ACCEPTABLE?
In the light of the discussion on the process of the setting of standards it is worth making some brief comment on the issues that surround what the target level should be. There is almost universal agreement that a need exists to tighten emission standards, but the question is by how much.

The Australian Conservation Foundation has proposed a fiftyc percent reduction in waste streams by the year 2000Q
[FOOTNOTE] Brotherton, Peter, op.cit.. The
fault with this approach is that it fails to take account of

either the damage caused by the discharge of any particular waste product, or the relative cost of eradicating such a pollutant from the production process. Thus, a fifty per cent decrease in the emission of polycarbons may achieve a level of discharge which can be absorbed by the air and water systems, without creating permanent damage or dangerous levels of pollution. However, a fifty percent decrease in the discharge of bio cumulative waste streams such as lead, cadmium and mercury, is regarded by not only environment groups such as GreenpeaceR
[FOOTNOTE] Divecha, Simon, op.cit. and the A.C.F.S

[FOOTNOTE] Hare, W.L., et al, op.cit., pp.48 49. as unsatisfactory, but also by the World Health Organization which has stated that the discharge of any heavy metals into water systems used by humans is unacceptableT
[FOOTNOTE] World Health Organization, op.cit., p.14..

The seçond problem which arises from a uniform approach to waste production, is the ease with which some products may be phased out of the productive process relative to others. Hence, items for which there are viable alternatives, such as chlorofluorocarbons may be replaced without great dislocation to industry. By contrast, despite reseach into alternative energy sources, carbon fuels cannot be readily replaced, without substantial economic dislocation, at least in the intermediate termU
[FOOTNOTE] Paltridge, Gareth, "The Politics of Global Warming", Current Affairs Bulletin, March 1990, p.5..

Despite these criticisms of target standards proposed by the A.C.F., the alternative is perhaps even more vexed. If individual standards must be proposed for each potential pollutant, then not only must an acceptable level for eachW class of waste be calculated, but a pricing regime designed to achieve that specific target must also be calculated. These determinations would have to be made for in excess of four hundred industrial pollutants in what would be a prohibitively large bureaucratic exerciseV
[FOOTNOTE] Marlow, John, op.cit..

We would suggest, that in order to balance the problems of bureaucratic excess and arbitrary target setting, a compromise between the various proposals should be adopted. The basis of our suggestion is that pollutants should be categorized by reference to common characteristics and uniform charges applied to all the wastes in each category. The basic objective, we would suggest, should be the adoption of the A.C.F. proposal, so that charges would be calculated to pursue a fifty percent decrease in waste streams. However, for those wastes deemed to be "priority wastes" by the E.P.A.W
[FOOTNOTE] See E.P.A. (Document No.1), Draft Industrial Waste Management Policy on Waste Minimization, op.cit., Appendix A., charges should be imposed which attempt to reduce the discharge of such by products to a level of zero, as the E.P.A. itself advocates.

These are however only initial proposals, and it is for the political process itself to decide upon standards within an incentive framework.

One factor which needs to be borne in mind, is that care should be taken not to make acceptable levels of toxic discharge too lenient, as there is considerable optimism in some sections of industry over the degree to which trade waste can be reduced. The comments of Frank Phillips, Chief Executive Officer of the Australian Chemical Industry Council are instructive:

"...companies have improved their environmental performance almost at an exponential rate. This can be mapped out over past years and it is not an uncommon principle within chemical companies toc

attempt to have no waste leave their site at a time in the medium term future.X
[FOOTNOTE] Frank Phillips, letter in response to a question asking "What is the likely response of the Australian Chemical Industry Council to pollution taxes?", 21/8/1990." A

Another key element that will need to be taken into account in the process of setting acceptable waste standards is what approach to technology should be taken. The E.P.A. has proposed a level of waste control technology described as "best available", to deal with priority wastesY

[FOOTNOTE] EPA, (Document No 1), op.cit., clause 28.. In contrast Pearce has argued that waste standards should be "technology forcing", thus demanding that users create new technology better than any existing control mechanisms Z
[FOOTNOTE] Pearce, op.cit., p.19..
An approach which requires companies to achieve standards beyond what is currently available is not unrealistic given statements by people such as Dr Rolls who maintain that for most goods there are alternative production approaches which simply need to researched[
[FOOTNOTE] See Section 3.2.1..

After the decision is made as to what level of waste is acceptable, it should be remembered that there remains a constant incentive to reduce pollution below that level. This is an advantage over regulatory schemes in situations where the standard has been set too low, because such schemes act to encourage polluters to emit waste upto that level rather than reduce it below the legal limit.

"3.3.3 SETTING THE TAX RATE AND COLLECTING THE REVENUE.
Once the maximum acceptable level of pollution is known the tax rate must be set so as to decrease waste outputs to the desired volume. At all pollution levels higher than the desired output, the tax has to exceed the cost of reduction. In order to achieve this, it is necessary to discover what itZ costs companies to reduce their pollution levels. This information could be gained from current knowledge about the costs of pollution minimization in order to set the initial tax rates. An unpublished Treasury Paper recognizes this aspect of introducing emission charges as a potentially problematic area:
"Inevitably a degree of uncertainty attaches to the impact of a tax or charge, as knowledge of the market reaction is likely to be less than perfect. However, this is unlikely to be an insurmountable problem... as the rate of tax or charge can be adjusted in the light of experience\
[FOOTNOTE] Department of Treasury, op.cit., p.8.

The solution to this problem of insufficient knowledge is

that as the pollution tax comes into force and begins to affect companies' operations, the necessary data on the costs of reductions could be obtained through tax returns, by requiring firms to include their expenditure on pollution reduction]
[FOOTNOTE] Downing, P., op.cit., p.35.. This data will enable the calculation of the
aggregate cost reduction function for each type of pollution which maybe used as the basis of the tax. Changes to the tax rates can be made as the information becomes more accurate. Obviously the charges will automatically be adjusted to take account of inflation.

Professor Robert Stavins of Harvard,clearly outlines the economic benefits of setting a uniform tax level for waste discharges. He argues that when standard charges are set: "firms wind up controlling different amounts [of pollution]... but all firms tend to experience the same marginal cost of pollution control. The result is that the total costs of pollution control are minimized, as compared with other allocations of the pollution control burden across firms.^

[FOOTNOTE] Stavins (1990a), op.cit., p.7.
" A

^An aggregate approach to setting the tax rate also reduces the incentive for firms to incorrectly report their pollution reduction costs, because they know it will only have a negligible effect on the final tax rate.

It is possible to know some of the characteristics of the tax scale before the information is actually obtained from the companies. One of the key characteristics is that the cost of reducing pollution is not a linear relationship. As pollution decreases, the cost of reducing it increases. Nichols points to the fact that to increase the amount of pollution controlled from 97% to 99% can cost as much as to control the first 97% of waste
[FOOTNOTE] Nichols, op.cit., p.8.. This is because technically it becomes
more difficult to remove pollutants as their concentration in the production process and in outputs is increasingly diluted. Such a process should be apparent from daily life. When people try to remove fat from soup it is relatively easy to pour most of it off. To remove the remaining fat floating on the surface you need to use paper towel. It is almost impossible to remove the small amount that remains suspended in the liquid. The exact nature of this relationship between removal and cost will vary from industry to industry.

"3.3.4 FILING THE TAX RETURNS.
Next, it is important to examine the legal structure necessary for imposing the tax on individual companies. The basic principle is that companies will submit a monthly report of their pollution emissions and the cost of pollution reduction measures already undertaken. They will then receive a monthly tax bill for those emissions. The E.P.A. has already stated that it is unable to constantly monitor discharges by all firms within Melbourne`
[FOOTNOTE] Robinson, Brian, op.cit.. Hence the need for a rigorously supervised system of self assessment. It has been suggested that normal tax auditing procedures combinedc

with verification by site checks should prove highly effectivea
[FOOTNOTE] Nichols, A., op.cit., p.11.

Apart from spot checks as to whether waste streams are actually the same as those reported, the monitoring equipment itself should be subject to periodic checks for accuracyb
[FOOTNOTE] Freeman, et al, p.106..
The revenue from a pollution tax could be made available for surveillance of firms, which would dramatically increase the possibility of effective monitoring a fact which would in itself be a strong deterrent to tax evasion.

Another suggestion is that information on emissions and charges incurred by firms should be made available for public

scrutinyc

[FOOTNOTE] Ibid.. Provision could be made to enable environmental groups suspicious of a stated discharge level to request site checks to be carried out. This would have the positive effect of increasing the public's capacity to be involved in the monitoring processd
[FOOTNOTE] In N.S.W., Greenpeace has been actively encouraged by the Minister for the Environment to pursue the role of defacto environmental supervisor..

If a company is found to have submitted an incorrect report, then the tax system may also be used to penalize it. A surcharge may be added to their bill of a size equivalent to either the degree of the inaccuracy or the amount of tax evaded, which ever is the larger. Compared with fines this would be substantially more efficient. First, it would avoid the cost and time delay of court proceedings. Secondly, it has a lasting effect on profitability and could not be written off in a single year. Thirdly, additional monthly payments would act as a persistent and strong reminder of the consequences of dishonesty over pollution.
ZThere are a number of reasons why a monitoring system based on self assessment is preferable to the current system of occassional monitoring employed by the E.P.A. and M.M.B.W. First, it places the cost of monitoring on the polluters themselves. The Dutch Parliament has pointed out, that while monitoring is a significant expense, it is a cost which all pollution control regimes must bear in one way or anothere
[FOOTNOTE] Downing, P & Hanf, K. (eds), op.cit., p.148..
This is not entirely true, as it is easier to check that an outflow does not exceed a particular level than it is to constantly record what is being releasedf
[FOOTNOTE] Victor, op.cit., p.42. However whatever the exact amount, it is in accordance with the polluter pays principle that companies should bear the cost of having their waste monitored.

Secondly, the costs of investigation by the environmental agencies can be recovered out of the revenue from the tax. This is also consistent with a polluter pays principle.

Thirdly, self monitoring avoids the problems of court enforcement. Combined with the overall system it means that it is cheaper for environmental authorities than meeting high litigation costs.

The fourth reason why self monitoring is preferable to an ongoing programme of oversight by the E.P.A., is that is less divisive. Freeman, suggests that it is a better model for handling social relations than an overt conflict modelg

[FOOTNOTE] Ibid..

Finally, it acts as a constant reminder to firms that they must reduce pollution. If companies have to fill in monthly reports on their pollution levels and the expense of

pollution appears in quarterly balance sheets there will be a much greater awareness of the need to reduce pollution. As compaired with the culture created by a regulatory system inc which firms often feel that it only if they are unlucky they might be caught for breaking regulationsh
[FOOTNOTE] Birrel, Mark, op.cit..

As monitoring represents a cost of production, the same incentives will act to reduce the cost of monitoring as those which operate to reduce the costs of emission controls. The expenses will create incentives for dramatically improved monitoring systems. It may also act to encourage industries to exercise a greater degree of self control over the nature of their discharges. If pollutants are being released in an ad hoc way rather than through controlled outlet sites, as some are, monitoring will be very difficulti
[FOOTNOTE] Robinson, Brian, op.cit.. Such companies would run substantial risks of inaccuracy in measurement and it would be very much in their interest to exercise a greater degree of control over the release mechanism of their industrial waste.

A potentially significant problem is pointed to by Victor who argues:
Ì
Ì"because new material can always be synthesised... there would always exist an incentive for effluent producers to substitute wastes that are not monitored for those that are."j

[FOOTNOTE] Victor, op.cit., p.42.F

This problem can only be overcome by vigilance on the part of the monitoring agency and it is a problem that has had to be confronted under regulatory systems.

"3.3.5 WHAT ROLE IS THERE FOR REGULATIONS?
One of the concerns of the Commonwealth Treasury Paper which examines pollution taxes, is that during the introductory phase, because the exact impact of the tax is not known, [there are dangers of acute environmental damage if the tax is not set high enough for some highly toxic wastesk
[FOOTNOTE] Department of Treasury (Commonwealth), op.cit..

The solution lies in a phased introduction of the tax, with the maintenance of existing regulations until this process is completel
[FOOTNOTE] Some support for this proposal has been given by the ACF and other environment groups, however, they advocate an ongoing role for regulations even after the tax is fully in place. See Hare, W., et al, op.cit., pp.27 30. Also Marlow, John, op.cit.
. The target level of pollution would be incrementally increased to the desired standard over a set period so as to take account of firms' adjustments to the new regime. Concurrently, the tax could be increased to foster

waste reduction towards the desired standard. Information gained, by the agency setting the tax rate during the phase in period, should mean that the rates will be accurate in terms of their desired effect.

An additional advantage of a phased introduction rather than an immediate switch to the new target levels of emissions is that it offers companies improved opportunities to plan and provides for greater capital mobility. There would be time for old machinery to be sold off or reworked into new processes and new less polluting methods of production to be developed and implemented. It would also spread the cost of introduction over a longer period causing less dislocation to industry.

Once the phased introduction is over, the question is whether or not it is necessary to maintain the regulations at all. Industry's concerns about regulations were well summarized by Geoff Chambers, a veteran of 29 years experience in the Chemical Industry, who said:
"It is a nightmare for management to keep upto date with the ever changing and ever increasing volume of regulations that govern every element of the[industry from building plants to their final dismantling."m
[FOOTNOTE] Geoff Chambers, who is now the Responsible Care Program Manager for the Australian Chemical Industry Council, Personal Communication, 19/8/1990.A

There is a strong body of opinion that suggests regulation is necessary. Leading economists like Oates and Baumol argue that in situations when pollution levels rise above a certain critical point, and damages rise significantly, regulations should be maintained so as to prevent pollution which exceeding that leveln

[FOOTNOTE] Oates, W.E. & Baumol, W.J., "The instruments for Environmental Policy", in Conference on Economics and the Environment, New York, National Bureau of Economic Research, 1972.. It also a concern that has been raised by the Dutch Parliamento
[FOOTNOTE] Downing, P. & Hanf, K. op.cit. p.148.. On a domestic level both the Australian Conservation Foundation and Greenpeace believe regulations need to be retainedp
[FOOTNOTE] Marlow, John, op.cit.
Macdonald, Fran, op.cit.. Domestic concern for the need to maintain regulations, largely relates to bioªcumulative waste like heavy metals which are not broken down in the environment. The argument these groups put forward have three components. First, regulations set an unambigious level above which pollution is not allowed. Secondly, legal sanctions are necessary to deter high levels of discharges. Thirdly, it is desirable to impose criminal sanctions on firms and their directors for both moral condemnation and deterrenceq

[FOOTNOTE] Ibid..

A tax system can address the first and second concerns by having a graded tax scale so that as waste emissions approach threatening levels, charges would increase exponentially. This would ensure that it was financially disasterous for companies to emit pollution at those levels. Therefore, thereN" should be no need to specificy a set level above which firms are not allowed to pollute as this will exist in practice anyway, if taxes increase exponentially above a critical quantity of emissions.

A crucial problem is that of deterring illegal discharges. It is suggested that the real test of effectiveness of a pollution regime, is whether or not companies think they will be able to avoid responsibility for emitting high levels of industial waste. Under a system of regulations, the probability of escaping the consequences is much higher because of the difficulties of detection and prosecution already dicussedr
[FOOTNOTE] See Section 2.2.2 on Enforcement..

A pure tax system, however, only requires that the company be detected. As the self monitoring system requires that companies install monitoring equipment, the chances of detection will be heightend. Once a company is caught, it will have to pay a high charge for discharging that waste plus they will have a large tax surcharge placed upon them which will be proportional to the amount of tax evaded. Given the size, the ongoing nature of the liability and likelihood of being caught, a tax system would probably act as a greater deterrent than a fine at the end of a regulatory system.

This raises the question of the imposition of criminal liability. It is suggested that imposing liability on company directors for excess pollution has proved effective in the United Statess
[FOOTNOTE] Brotherton, Peter, op.cit.. There would be no difficulty about imposing
such liability under a tax system. Company directors could be made personally liable for the same amount of additional tax that a firm had to pay. Once the magnitude of the breach was sufficiently high, a jail sentance could be imposed in addition to any tax bill incurred by the director, as occurs in many American States.f

"3.4 THE TAX AS A TOOL FOR PLANNING.
The tax is a very flexible legal tool which can be incorporated into a legal programme to assist environmentally sensitive planning. With some systems of effluent charges part of the calculation is based on the location of the polluter. The French, for example, use a zone coefficient which is a number by which all the charges in a particular region are multipliedt
[FOOTNOTE] Bower, Blair, et.al., Incentives in Water Quality Management in France and the Rhur, Research Report R 24,

Washington D.C., Resources for the Future, 1981.. Such a device, although not
presently used in this way, could be applied to offer long term economic incentives toward a particular distribution of industry that would minimize environmental damage.

If, for example, an ecosystem was particularly sensitive in its upstream reaches, then a high zone coefficient might be imposed for that region. This may be used to discourage industry from establishing in this area and encourage a long term shift away from the region. In unspoiled areas where it was desired to restrict development, it would be necessary to include in the zone coefficient an amount that discounted the economic incentives of moving into that region because of inducements such as cheaper land.

Another planning use of a pollution tax may be to aid in breaking up the concentration of industry. The solution here is to impose a high coefficient in concentrated areas and lower coefficients in other areas. The coefficients could themselves be the product of a base number multiplied by the number of polluters in a region. This would encourage a spread of firms such that they equalized the coefficients in order to minimize long term competitive advantage to other firms. By manipulating the base value, different patterns of concentration of development can be encouraged.
c
Important to the operation of such a system would be the provision of clear information to the companies about the zone coefficients, in order to facilitate their long term planning.

"3.5 SPENDING THE REVENUE FROM THE TAX.
In looking at the legal structure of a pollution tax, the revenue generating side of the system can play a vital role in environmental protection. The revenue would be best spent by an environment protection agency, whether it be at federal or state level, in order to provide coordinated and consistent environmental programmes. Other alternatives will be examined in the case study of the N.S.W. proposals.

Payment of all revenue direct to an environmental agency avoids the current problems, discussed previously, where income from the charges goes into consolidated revenue. It is important that this does not occur as it is one of business' hesitations about pollution taxes that they will simply be used to increase general government revenueu
[FOOTNOTE] Geoff Chambers, op.cit..

Governments, may however want to direct such an agency to spend particular portions of funding on particular areas. For example, they might desire that 80% of revenue be spent on the very expensive task of cleaning contaminated sites. If such decisions are made through the political process it offers the opportunity for public input into the priorities of environmental management.

There is a diverse range of programmes to which the very substantial funds that will be raised could be directed.

There is a vital need for better information on the way in which environmental processes are effected by pollutants, because as Hollick states:
"the actual damage caused is usually uncertaini
because of poor scientific understanding about the interaction of pollutantsv
[FOOTNOTE] Hollick, M., op.cit., p.65". A

An example he points to is that:
"both sulphur and nitrogen oxide are involved in the production of acid rain. Not only is it hard to separate the effects of these two pollutants, but also it is difficult to estimate the degree of acidity that is produced compared to "clean" air because of the complexity of the natural processesw
[FOOTNOTE] Ibid., p.65.".A

Improved understanding of natural systems is vital in setting pollution standards and therefore in setting tax rates that are truly effective in protecting the environment.

The N.S.W. example could be followed by providing funding for research into means of reducing pollution. Alternatively, there is a desperate need for the expensive clean up and restoration of contaminated sites within Victoriax

[FOOTNOTE] Burbury, Jan, op.cit..

In addition, funds could be made available for programmes such as the present "Clean Technology Incentive Scheme" run by the E.P.A. which:
Ì
Ì"provides interest free loans to assist companies in financing the cost of technology to reduce the volume of industrial wastes generated.y
[FOOTNOTE] Waste Minimisation Programme Information Brochure, E.P.A., 1990."F

In 1988 89 the scheme provided 16 companies with $464,000z
[FOOTNOTE] Ibid.
while a large number of applicants were unable to be funded because of restrictions on finances{
[FOOTNOTE] Ibid.. Equally funds couldP
be directed toward other programmes for assisting industry and employees make the transition to a pollution tax regime.

Funds could also be usefully spent on helping provide environmental education. This can occur at all levels from general awareness campaigns, to programmes directed towards companies, particular communities or schools.

(* * *f

Although emission charges offer a means of encouraging waste reduction, introduction of cleaner technology and ensuring increased revenue, there are serious problems which must be overcome before they can be implemented.

("4. PROBLEMS AND LIMITATIONS OF THE POLLUTION TAXƒ

A legal system which employs a pollution tax is not without problems and limitations. These may be broken into two categories problems of operation and problems encountered in their reception by various groups.

"4.1 OPERATIONAL PROBLEMS
We want to first focus on the problems in the operation of the tax. Here, three main difficulties arise. First, the tax imposes a financial burden on the consumer and low income earners. Secondly, charges have a direct effect on the viability of companies. Thirdly, they affect the inter state and international competitiveness of companies.

"4.1.1 EFFECT ON LOW INCOME EARNERS.
The pollution tax acts much like a consumption tax by producing across the board real price rises. As with any consumption tax, those on lower incomes bear a disproportionate burden of the cost of implementing the policy, because they will spend a larger proportion of their salary on consumption than those on higher incomes|
[FOOTNOTE] Freeman III, A.M., Haveman, R.H. and Kneese, A.V., op.cit., p.145.. While
this situation is undesirable, there is hope that this effect will be minimized in the long run as prices fall in real terms when firms find less expensive means of reducing pollution}
[FOOTNOTE] Pearce, D., op.cit., p.19..

If the problem nevertheless creates inequalities which are unacceptable, one option is to use revenue raised by the pollution tax to fund tax cuts for low income earners~

[FOOTNOTE] [Art 504], p.18.. The severe disadvantage with this approach is that it denies the use of the revenue for environmental clean up programmes. A second more viable option, is to provide tax relief to those on lower incomes by tax increases for those on higher incomes. This shifts the cost of the tax from the lower income groups to higher income groups
[FOOTNOTE] Ibid.. This approach, suggested by Pearce, would mean that those best able to bear the burden of the tax would be so doing. All of these options for reducing the impact of the tax on consumers must ultimately be decided upon by the political process

The tax regime as a means of controlling pollution will not prevent a problem for low income groups that is inherent in any approach to pollution reduction. In studies of American cities, Freeman has demonstrated a causal link between air quality and land prices
[FOOTNOTE] Freeman III, A.M., "The Distribution of Environmental Quality" in Kneese, A.V. & Bower, B.T. (eds), Environmental Quality Analysis: Theory and Method in the Social Sciences, Baltimore, Johns Hopkins Press, 1972.. Improved air quality, means rising property prices and because most poor people rent their houses, increased rents for those in low income groups
[FOOTNOTE] Ibid..

"4.1.2 EFFECT ON COMPANIES.
A government which introduces a pollution tax into its legal framework will have to accept that the tax may bankrupt some companies. As outlined earlier, a phased introduction of the tax regime will minimize these problems
[FOOTNOTE] See section 3.3.5..

If such a legal approach is going to contribute to unemployment and consequent social dislocation an adjustment assistance programme may be desireable. Some analyists have pointed to the American Trade Expansion Act 1962, as a successful example of a legislative scheme which could be applied to help alleviate the difficulties caused by theT introduction of a pollution tax
[FOOTNOTE] Freeman III, A.M., Haveman, R.M. and Kneese A.V., op.cit., p.148.. The Act was aimed at ameliorating the hardship brought about by a reduction in tariffs. Assistance was available to companies who could show that tariff reductions had been a "major" cause of unemployment, equipment shut down or loss of profits. Firms were able to obtain assistance in developing new products and cheaper production processes as well as concessional finance. Workers were entitled to a range of benefits including retraining programmes and an allowance to support them while they did so, as well as reallocation grants to enble them to move to new work.

In the end if companies, which are there to serve the

community, cannot exist within the constraints of the environment we would argue they do not deserve to exist at all. The N.S.W. Minister for the Environment, Tim Moore, has acknowledged that part of the price of an environmentally sensitive society will be the loss of some businesses [FOOTNOTE] Moore, Tim, N.S.W. Minister for the Environment, Personal Communication, 30/8/90.. The Victorian Liberal leader in the Upper House, Mark Birrel argues that the firms which will go out of business will be the most inefficient producers and will not represent a great loss to industry [FOOTNOTE] Birrell, Mark, op.cit.. Birrel's comments highlight an advantage of the pollution tax over the regulatory approach, in that it will be the market system based on efficiency rather than an arbitrary regulatory system that will decide which firms to eliminate.

"4.1.3 EFFECT ON INTERSTATE AND INTERNATIONAL COMPETITIVENESS. The final problem derives from the jurisdictional limitations imposed on any legal system. Difficulty arises if a company in one geographical location is bearing an impost which is not borne by a company in another location. The firm not] paying the tax has a substantial competitive advantage resulting from what is in reality a hidden subsidy of their damage to the environment. In a federal legal structure, such as Australia's inequalities of imposition may be best delt with either by Commonwealth legislation or uniform action by the states. The power of the Commonwealth to implement the first approach and the political will of the States to enact uniform charges are each doubtful and will be considered in Chapter 6.

"An Environmental Tariff
At an international level, the problem of countries taking advantage of other states' environmental consciousness both in terms of market access and improvements in global pollution levels is well recognized [FOOTNOTE] Pearce, D., op.cit., p.20.. A solution may lie in expanding the scope of the legal regime for implementing the pollution tax to include environmental tariffs and subsidies. An environment tariff, as a prerequisite, would require imports to be categorized into groups according to the ecological effects of their production. Tariffs would vary from no charge for very "clean" products, to considerable charges for products which generate high levels of waste.

The onus would be on importers to provide documentation as to which category their products fell within. In order to minimize attempts at tariff evasion companies could be required to have their products categorized by an internationally recognized environmental auditing firm. Products could be randomly checked and if they had false certifications as to their environmental impact, then the auditing firm's categorizations would cease to be recognized. This would provide a strong incentive for auditing firms to be accurate as inaccurancy could incur loss of business andc

serious penalties
[FOOTNOTE] In the United States, significant finacial and criminal sanctions apply where auditors are found to have presented false environmental assessments.. It is probable this would outweigh
corrupt payments for favourable assessments of individual firms.

Professor Creedy argues that where imports are used in production processes subject to the domestic tax, it would be necessary to have provision for importers to be able to apply for tariff exemptions in order to avoid double taxation

[FOOTNOTE] Professor Creedy, op.cit..
There would also be tariff exemptions for products subject to a pollution charge in their place of origin.

Problems could arise from such a tariff. Dr Leigh Alexander, an Economist with the International Monetary Fund, suggests: "The major difficulty with the tariff is that
Australia's trading partners might use the tariff
as an excuse to raise non environmental
tariffs
[FOOTNOTE] Alexander, Dr Leigh, Economist with the International Monetary Fund, Personal Communication, 14/8/1990.".A

From the perspective of Australian exports this could be a considerable problem. If the foreign tariffs were imposed on Australian products already subject to the pollution tax, this would increase the competitive disadvantage for those goods whose production was environmentally responsible. Thus whether or not an environmental tariff would be effective depends on the response of Australia's trading partners to such a tariff

[FOOTNOTE] Ibid.. Because of these problems, Dr Alexander suggested that the issue would best be raised as an item for discussion at the General Agreement of Trade and Tariffs conference

[FOOTNOTE] Ibid..
UInteresting consequences could flow from the provision of tariff exemptions for countries which impose pollution taxes on their own products. If industry in one country was heavily reliant on exporting to another country with an environmental tariff, there may be a substantial incentive for the first nation to introduce a pollution tax in order to qualify for the tariff exemption. The problem for Australia is that it is not a sufficietly large importer to cause this phenomenon to emerge

[FOOTNOTE] Ibid.. The only country, in Dr Alexander's view, that would be large enough to induce such a response is the United States

[FOOTNOTE] Ibid.. Even so, if Australia were to introduce such an enviornmental tariff it would assist in placing the concept on the international trade agenda.

"Environmental Subsidies
The concept of an environmental subsidy to help firms compete in foreign markets, against firms on whom pollution charges are not levied, is problematic. Three difficulties present themselves with either a full or partial subsidy.

The first problem is that subsidies will act to offset the emission charges, and therefore the effect of the tax on waste reduction will be lost

[FOOTNOTE] Freeman III, A.M., Haveman, R.M., and Kneese, A.V., op.cit. p. 146 7.. The impact of this effect
will vary depending on the mix of exports in the firms total production. If a firm is exclusively an exporter it will attract complete subsidies and the tax will have no effect at all. For companies which export a large proportion of their output, then the impost on the small amount of domestic production is going to be more in the nature of a licence fee than a tax and many of the advantages of the tax will be undermined.
]The operation of the subsidy will be different for firms exporting a more limited portion of their production. The effect of subsidising some goods will be to remove the incentive for pollution reduction from those goods. In order to attain the desired level of waste reduction, this means a higher tax would need to be imposed on the emissions of those goods prepared for domestic production. Therefore the price of domestic goods would be forced up, consequently erroding the firm's profitability on the domestic market. Minor exporters firms could then either choose to concentrate on the domestic market or they could move toward solely exporting.

The second problem pointed to by some economists is that subsidies encourage more firms to enter an industry. Hence, although individual output of pollution may be reduced, the total output might be increased
[FOOTNOTE] Bromley, op.cit., p.40.. This will create a subsequent difficulty, in that the emission charges will have to rise in order to bring pollution levels back down to the acceptable standard.

The third problem for the legal regulator is how to fund the subsidies. The ideal solution would be if they could be funded by the environmental tariff. However, if this was not possible revenue from the tax itself could be directed towards the exercise, as this would avoid the political problem of cutting into other revenue sources.

A solution preferable to funding firms to compete in foreign markets, would be to use the money raised by the environmental tariff, to make available to exporting firms grants for research and development of emissions reducing technology or low interest loans for the installation of pollution limiting equipment
[FOOTNOTE] Already the Victorian E.P.A. has a pilot programme, the Clean Technology Incentive Scheme, which is modelled on similar principles.. This would enable firms to reduce their pollution and thereby substantially decrease their competitive disadvantage in foreign markets. An additional benefit from an Australian perspective, is that this support would create strong incentives to export. This would be because the subsidized advances made in pollution reduction processes would be a substantial competitive advantage in the domestic market.

Nevertheless some firms would be compelled to pay a tax that their overseas competitors were not. In the Australian context this should not generate a substantial problem, as a vast proportion of Australia's exports are primary products which do not attract the tax in the first place. It should also be remembered that the focus of the exercise is to restrict pollution within Australia and this does have a cost.

"4.2 PROBLEMS OF RECEPTION

The question of the implementation of pollution taxes essentially involves political barriers.

"4.2.1 INDUSTRY'S RESPONSE.
In April 1990 the Business Council of Australia released its policy statement on the environment called "Development and the Environment" which called for market based solutions to environmental problems

[FOOTNOTE] "Development and the Environment", A Policy Statement of The Business Council of Australia, April 1990, headings 2 and 6.. Part of the policy involved a committment to:
"Publish a discussion paper examining the conceptW of sustainable development from the perspective of Australian business.
[FOOTNOTE] Ibid. Heading 8." A

The Business Council paper which was released in August 1990
[FOOTNOTE] The Age, 13/7/1990 calls for a move away from regulations towards market
based solutions to environmental problems

[FOOTNOTE] "Achieving Sustainable Development", Business Council Bulletin, August 1990, pp.18 20.. It did not express an overt preference among options that ranged from

performance bonds to environmental subsides. Rather, it said that "each of these mechanisms requires extensive debate and consultation prior to implementation."
[FOOTNOTE] Ibid. Transferable permits were, however, viewed as presenting the fewest problems. The paper was disparaging in its attitude towards pollution taxes:
"In the case of taxes and charges, there is the problem of arriving at the appropriate level to create the right insentives. Governments need to avoid the temptation to operate them simply as revenue raising devices.
[FOOTNOTE] Ibid. p.19

The ultimate response of the Business Council to pollution taxes has been reserved until there is a futher public debate on the most appropriate market mechanisms for Australia. In such a context it is worth noting that their express concerns are dealt with by the mechanism this paper proposes for setting the taxes.

The Australian Chemical Industry Council (A.C.I.C.) which is the peak body of an industry the pollution tax will particularly affect resists the general idea. Their argument for rejecting the tax is:T"The average chemical company would pay hundreds of thousands of dollars in local rates as well as payroll taxes, excise duties, license fees [e.t.c]... By any standards, the chemical industry in Australia is currently very highly taxed. On the proposition for a further tax, almost irrespective of the equity or merit questions of the tax, one can understand why we would be reluctant to embrace it."
[FOOTNOTE] Frank Phillips, Letter, op.cit. A

The A.C.I.C.'s attitude is an extention of a general policy of rejecting any market based solutions which impose burdens. The Council only supports initatives which act as an incentive by removing costs
[FOOTNOTE] Ibid.. As such, they express a preference for restructuring the tax system to include the provision of tax deductions for expenditure which reduces pollution emissions

[FOOTNOTE] Ibid..

It should be noted that the A.C.I.C. has a strong policy of encouraging improvements in the environmental policy of member firms. To this end it requires members to adopt the concept of "Responsible Care" which is a committment to a series of codes of environmental practices
[FOOTNOTE] Responsible Care Insight, Melbourne, Australian Chemcical Industry Council, April 1990, p.1. The Australian

programme is an adaptation of a very similar programme that has had some success in Canada, see "Handle with Responsible Care", C.M.A. News, Chemical Manufactures Association, Vol 18, No. 2., March 1990, pp.1 20..

It is important to remember that experience has shown that most waste reduction programmes ultimately have a financial return
[FOOTNOTE] Geoff Chambers, Responsible Care Coordinator, Australian Chemical Industry Council. This is also a major theme of Elkington in his text The Green Capitalists, esp. pp.3 5. . Therefore, hostile industry responses are likely to be tempered by long term efficiencies. This is because itJ& has been discovered, that waste reduction often means a more efficient use of inputs and the development of recycling systems which are in the end cheaper than buying new materials
[FOOTNOTE] Ibid..

"4.2.2 THE POLITICAL RESPONSE.
There is little doubt that the past decade has seen a sea change in political attitudes toward the environment. Part of this change has been an acceptance that the current regulatory framework for controlling pollution is inadequate
[FOOTNOTE] See Section 2.1. The inclusion of economic instruments in party
platforms and government policy has already begun to occur.

The vanguard of this change is the N.S.W. Liberal Party which has already implemented a form of pollution tax. The operation of this system will be examined in Chapter 5. Tim Moore, the N.S.W. Minister for the Environment, has briefed the Victorian Liberal members on the N.S.W. approach and it is being seriously scrutinized at as a model for Victoria

[FOOTNOTE] Birrel, Mark, op.cit..
There seems little doubt that some form of pollution tax will be introduced into the Liberal's platform, particularly as Mark Birrel has said that "the logic of such a tax is inescapeable."
[FOOTNOTE] Ibid.

From the persepective of inter state implementation, Birrel is strongly of the view that there was a necessity for national standards. He acknowledged that if it was left to the States this would present some difficulties, particularly in relation to Western Australia, which he viewed as the most conservative on environmental issues
[FOOTNOTE] Ibid..
ZIn terms of its constituency the Liberal's seem to have the view that there is far greater political mileage to be gained in reducing pollution, than will be lost by complaints from business!
[FOOTNOTE] Tanner, Ted, op.cit.. Mark Birrel, commented that "those who oppose it
most will be the least vocal in opposition""

[FOOTNOTE] Birrel, Mark, op.cit.. This comment was based on the view that those whom such a tax would most effect are the worst polluters and would be unlikely to comment, lest they expose the fact they were serious polluters. He saw small firms as foremost in this category. By contrast Birrel argued that large corportions are "facing up to the political realities" of being more enviromentaly responsbile#

[FOOTNOTE] Ibid.. There is also a strong consensus that even if some of the Liberal's constituents do respond negatively, a pollution tax does need to be introduced to properly serve the public interest$
[FOOTNOTE] Tanner, Ted, op.cit..

Birrel expressed the view "that the key thing in dealing with business was not ambushing them"%
[FOOTNOTE] Birrel, Mark, op.cit. . Business' greatest concern according to the Liberal Party is the need to have a certainty which would enable them to plan for the long term.

These optimisic directions should be tempered at least to some degree by Premier Nick Greiner's comments in his "Earth Day" speech earlier this year:
"Regrettably, too many people on the conservative side of politics still view environmental consciousness as some sort of left wing conspiracy. Amongst both the Liberal and National Parties there is still a cringe when the environment is mentioned
a subconscious aversion that arises, I believe, from a misconception that there is some fundamentalT philosophical inconsistency between environmental consciousness and democratic capitalism.&
[FOOTNOTE] "The New Environmentalism: A Conservative Perspective, Earth Day, Sunday 22 April 1990", State of the Environment, No.6, June 1990, p.1." A

On the Labor side of politics, Senator John Button has commented that there is broad support for a greater use of economic instruments to control pollution'

[FOOTNOTE] Senator John Button, Minister for Industry and Commerce, A.L.P. Leader in the Senate, Personal Communication, 14/10/1990.. As has been noted earlier, the Treasury has been engaged in considering discussion papers on the broad area of economic incentives. Senator Button, from a personal perspective has concerns about the effect on industry of the introduction of a pollution tax, particularly during the current period of Australia's economic difficulties(
[FOOTNOTE] Ibid.. It is his view that for both practical and constitutional reasons any such tax would best be introduced by the States. He was particularly doubtful about the Commonwealth's capacity to spend any revenue raised by the tax on environmental purposes)
[FOOTNOTE] Ibid..

Senator Janet Powell, has argued that the Australian Democrats would support the introduction of a pollution tax for similar reasons to both the Liberal Party and the A.L.P.*
[FOOTNOTE] Powell, Janet, op.cit.. The Democrats would not be interested in a tax
however, unless it was sufficiently large to occasion a real decrease in the emission of trade waste+
[FOOTNOTE] Ibid..

A general consensus emerges from the political arena that a pollution tax is both desirable and, in some form, is inevitable. There is a strong view that emission chargesM" should be carefully phased in so as to allow for long term planning on the part of industry. Interestingly, it was considered by both the A.L.P. and the Liberal Party that the State level is the most effective tier of government at which to implement a pollution tax.

It is important to examine the way in which versions of the pollution tax have been implemented outside of Victoria.

("5. THE POLLUTION TAX IN PRACTICE.f
"

5.1 THE NEW SOUTH WALES APPROACH.,
[FOOTNOTE] Unless otherwise noted the factual details in this section are compiled from personal communication with Tim Moore, N.S.W. Minister for the Environment,
In January of 1990, New South Wales became the first Australian State to introduce a pollution tax. The system essentially involves charging a fee based on the mass and volume of pollutants discharged into the sewerage network. A system of licence fees for air pollution rights also exists but is less well developed. The charges were developed by the State Ministry for the Environment as a tailored response to the N.S.W. situation and were not modelled on any overseas system.

The philosophy behind the licence fee is a desire to "drive business toward improved waste management."-

[FOOTNOTE] Moore, Tim, op.cit. The charges are based on the impact of the substances and the notional cost of their removal. Once they are determined, they are subject to cabinet approval and change. The level of the fee is characteristed by the N.S.W. Minister for the environment as being "sustainable pain".
[FOOTNOTE] Ibid. . The theoretical level of the charges ranges from a thousand dollars to a maximum of two and half million dollars. When the system was introduced it saw an increase in charges over the old system of between 16% and 200%/
[FOOTNOTE] It should be noted these increases are not as impressive as they might seem given the very low level of the original licence fees..

The licence fees, according to Moore, have had an impact on business already with waste discharge levels beginning to decrease. In at least two instances the licence fees have actually been responsible for companies going out of business. However, the N.S.W. Government believes as aW general policy that "good environmental protection and good long term management can be mutually supportive."0
[FOOTNOTE] "Establishing an Environment Protection Authority in N.S.W.", State of the Environment, No.7, July 1990.

Firms are responsible for supplying a record of their discharges, although the Water Board carried out random audits to check the accuracy of reports.

Regulations have been maintained in addition to the licence fees because the charges are, in reality, only a secondary means of controlling pollution. Breaches of the regulatory standards are subject to criminal prosecution.

Moore felt that the tax was clearly not subject to s.90 of the Commonwealth Constitution, because it was merely a user charge1

[FOOTNOTE] Moore, Tim, op.cit.. He argued further that an excise had to be a tax
on the sale of a product to a third party, which this charge was not. His second response was to say that "the charge is a price which the State is exacting for the right to discharge waste into the State's resources."2

[FOOTNOTE] Ibid.

These charges are very much part of an ongoing attempt to introduce economic measures so as to protect the environment. Tradeable licences3
[FOOTNOTE] Waste Planning for Industry A Guide, Sydney, Waste Management Authority of New South Wales, 1990, p.16. and the creation of property rights in
various natural resources4
[FOOTNOTE] "Establishing an Environment Protection Authority for New South Wales", State of the Environment, No. 7, July 1990, p.8. are already being canvased as
future options for environmental protection .

"5.1.1 APPLICATION OF THE REVENUE RAISED.NRevenue raised by the charges is to be accumulated into three
trust funds5
[FOOTNOTE] Information on the trusts funds is from: Moore, T., "Statement from the N.S.W. Minister of the Environment", State of the Environment, May 1990, New South Wales Government, pp.5 6.. The "Environment Restoration and Rehabilitation Trust" is to be the largest of these trusts receiving 70% of the revenue raised. Funds from this trust are to be applied for two purposes. The first is to underwrite emergency clean ups and to foster broader restoration projects. These restoration projects will attempt the clean up of many larger contaminated sites.

Of particular concern, are sites where legal liability for the pollution may not be easily traced. This maybe because the firm that caused the pollution no longer exists or because the some sites that have been contaminated by a series of polluters in proportions that are unknown and extremely hard to establish.

The "Environmental Research Trust" which receives 20% of the revenue is mainly used to fund research in the physical, chemical and biological sciences into new means of treating and eliminating waste. A special focus is on high risk, high return research, which might otherwise have problems obtaining funding. In addition, there will be research into endanged species.

The final trust fund is the "Environmental Education Trust", which is given 10% of revenue for the dual purposes of providing broad education programmes, particularly in secondary schools and for funding community education projects.

In its first year of operation, the funds are expected to accumulate $17.5 million6

[FOOTNOTE] Ibid.. Of this, it is expected that]
only $1.75 will be spent by the trust funds7
[FOOTNOTE] Ibid.. By the year
2000 it is expected that the trust funds will have accumlated
$425 million and have given total grants in excess of $162
million8
[FOOTNOTE] Ibid., p.3..

"5.1.2 FLAWS IN THE N.S.W MODEL.
It is important that some criticial comment be made on the
N.S.W. experiment, as other State Liberal parties consider it
as a model to be followed9

[FOOTNOTE] Tanner, Ted, op.cit. and Birrel, Mark op.cit. .

The basic criticism of the N.S.W. approach is that has only
half heartedly adopted the concept of economic incentives as
a means of managing waste. The result is that many of the
problems of the previous system remain and the full benefits
of an incentive based scheme are not acheived.

The system's basic concept, is to "drive business toward
improved waste management":
[FOOTNOTE] Personal Communication, Tim Moore.. It envisages a process
of
gradually increasing the economic pressure on business. There
are however, a number of problems with the way N.S.W. has
attempted to implement this philosophy.

First, the system involves a heavy reliance on regulations.
This means that the problems of enforcing regulations will
remain. Without an overall rationalization of the pollution
control system, business will complain that it is subject to
two layers of pollution control when only one is necessary.

Secondly, there is some doubt as to how far reaching the
current environmental objectives actually are. No substantial
price increases have been reported in final products of firmsZ
upon whom the charge is levied;
[FOOTNOTE] Moore, Tim, op.cit. and only a relatively small
amount of revenue $17.5m has been generated<
[FOOTNOTE] "Statement from the N.S.W. Minister of the
Environment", op.cit., p.3.. This
indicates that the pollution levels aimed at, probably do not
amount to a serious reduction as both economic theory and
overseas experience, suggest some price rises and far greater
revenue accompany major pollution reductions.

There are also problems in the way in which the revenue is
spent. While there is some merit in the concept of a trust
fund as a means of preventing revenue from the charges ending
up in consolidated revenue there are limitations attached to
such a scheme. The primary problem is that the trusts deny
flexibility to an environment protection agency. A unified
and consistent approach to managing pollution and treatment
problems is desirable, given the scale and complexity of the

issues involved. The trust funds make such an approach difficult as they require an environmental agency to try and work in tandem with three different bodies of people all of whom may have different priorities. There is nothing wrong with earmarking percentages of revenue for particular uses but this can be done more simply through a single agency.

There is a further problem with the N.S.W. scheme in that the objects to which the revenue is directed are limited. Most importantly, funds are not provided for improvements in detection.

In the case of the Environmental Research Trust there appears very little, if any, emphasis on funding research into the impact of pollutants on the environment. This is unfortunate. As has already been noted, this is an area in need of greater research which is vital in terms of setting accurate levels of emissions.

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Finally there is no substantial advantage in saving the revenue for the future. If anything it is preferable, particularly in the case of cleaning up sites, to start treatment as soon as possible. If the returns from the charges are so large that they cannot be spent by an environmental agency in a single year then there would be nothing preventing them being accumulated for future use. The philosophy behind the trust funds appears to be a concern that revenue should be available for the use of future generations=
[FOOTNOTE] "A statement from the N.S.W. Minister for the Environment", op.cit., p.3.. It should be remembered that a charge system
will continue producing revenue for a very substantial period into the future.

Despite its flaws, the charge system imposed by New South Wales has many virtues, and appears more likely to be successful than some of the systems imposed overseas.

"5.2 EMISSION CHARGES IN OPERATION OVERSEAS
Pollution taxes have been incorporated into the waste control systems of most European nations and many US States. France, Germany and the Netherlands have all employed tax based systems in preference to regulatory regimes as the primary means of maintaining water quality levels>
[FOOTNOTE] Opschoor and Vos, op.cit. p.113..

As outlined in Chapter 1?

[FOOTNOTE] See Chapter 1.3, in the Literature Review., there is a growing acceptance
within the industrialized states that economic instruments represent a vital tool which legislators may use to control pollution. Lawmakers in the United States@
[FOOTNOTE] Torrens, I.M., "Reducing air pollution: an economically sound investment?", Clean Air, Vol 20/3, August 1986, p.77., Western
EuropeA
[FOOTNOTE] Macioti, Manfredo, op.cit., p.36., Great BritainB
[FOOTNOTE] Survey of Current Affairs (Editorial), "The Environment Protection Bill", Survey of Current Affairs, February, 1990, p.81. and AustraliaC

[FOOTNOTE] Juddery, Bruce, "Making money from protecting the environment", Australian Business, 5/7/1989., p.56. amongst others, T have all declared their allegiance to the polluter pays principle. The extent to which these committments have been applied in practice, has varied from country to country.

In the United States, despite the predominance of "command and control" approaches to environmental management, there has been a gradual recognition and adoption
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of economic
instruments in place of regulationD
[FOOTNOTE] Opschoor and Vos, op.cit., p.109.. This has been most notable in the area of tradeable waste permits. Most Western European nations including France, Germany, the Netherlands, Italy, Sweden and others embraced a user pays approach to waste management during the early 1970s, and have since developed a range of programmes designed to further that philosophyE
[FOOTNOTE] Ibid., pp.27 and 34.. Within our own region, New Zealand recently
introduced a resource management system based on tradeable quotas for fishing catches as a means of resolving the overuse of its fisheries. The considerable success which this programme experienced, according to the American resource economist Professor Tietenberg, is likely to induce our Trans Tasman neighbour to adopt much wider application of economic instrumentsF
[FOOTNOTE] Tietenberg, T., "Using Economic Incentives to maintain our Environment", Challenge, March April, 1990, p.42..

Great Britain, in contrast to the trend in other States introduced a new command based system for emissions control with its Environment Protection Act in January 1990. The basis of this system was an increase in the power of the Secretary of State for the Environment to prescribe wastes and designate new mandatory processes for wasteQ
minimizationG
[FOOTNOTE] Survey of Current Affairs (Editorial), op.cit., p.81.. In conjunction with the regulatory approach
adopted by the Act, there was a pledge not to harm industry unduely. Thus, a requirement that businesses install "best

available technology" so as to reduce pollution, was seriously qualified by the Secretary for the Environment Mr. Patten, who said:
"Conditions (for waste discharge) given to each industrial process would ensure the greatest protection to the environment as a whole. These would be based on the best available techniques "not entailing excessive costH
[FOOTNOTE] Ibid., p.15.
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Although Britain has adopted a more regulatory attitude towards limiting industrial emissions, this would seem to be against the international trend which supports the use of economic instruments for that purpose. The rest of this section will examine: the particular type of charges which have been employed by various actions, the types of pollution to which they have been applied and a case study of the Dutch emission charge programme.

"5.2.1 THE RANGE OF ÇHARGES IMPOSED OVERSEAS.
Opschoor and Vos identify five different types of taxes or charges which are currently in use as a means of stemming industrial wasteI

[FOOTNOTE] Opschoor and Vos, op.cit., p.15.. These imposts may be described as
effluent charges; user charges; product charges; administrative charges; and tax differentiationJ
[FOOTNOTE] Ibid., p.15.

Effluent charges are "charges to be paid on discharges into the environmentK
[FOOTNOTE] Ibid., p.15.. They are calculated by reference to the quantity and quality of the pollutants discharged and are theW primary focus of this paper. Their major use has been in the field of water protection and noise abatement, although there are some countries which have applied them to air emissions and waste dumped on landL
[FOOTNOTE] Barde, Jean Phillipe, op.cit., p.13.. France and Japan have effluent
charges for maintaining air quality standardsM
[FOOTNOTE] Ibid.. Belgium,
the Netherlands and various States in the U.S.A. have adopted solid waste charges, whilst seven nations have implemented relatively comprehensive noise control taxes which are applied to airlines and to industryN

[FOOTNOTE] France, Germany, Japan, The Netherlands, Switzerland, The United Kingdom and the U.S.A..

It is interesting to note that in France, the air pollution tax is restricted to emissions of sulphur dioxide alone and has only been applied to approximately four hundred large firmsO
[FOOTNOTE] Opschoor and Vos, op.cit., p.36.. These facts, in conjunction with the relatively low
level at which the charge is set, means that there has been no significant disincentive for would be polluters. Similar criticism has been directed against noise abatement taxes where they have been raised, because pressure from airline companies has ensured that such charges have remained lowP
[FOOTNOTE] Ibid., pp.48 49.

The leading examples of solid waste emission charges are in the Netherlands and the United States. The Dutch system, which focuses primarily on waste manure because of its contribution to acid deposition, is regarded as having had little effect because of objections raised by farmers and difficulties in calculationQ
[FOOTNOTE] Ibid., p.45.. Over twenty U.S. States have established a hazardous waste tax. However, because the charges associated with legal chemical dumping are low they are considered:T"... unlikely to affect behaviour in a significant way.R
[FOOTNOTE] Ibid., p.46.

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We will examine the impact of waste effluent charges in the Dutch case study.

Other than effluent charges, the most widely applied imposts are user charges, which are payments for the treatment of wastewater. Sewerage treatment is the most prominent example of a user charge. They differ from effluent charges in that these exactions do not account for the specific contents of the effluent. In most countries, there is a flat rate for the sewerage collection service. Thus, there is no disincentive to decrease waste levels below the maximum allowed by the chargeS
[FOOTNOTE] Paterson, John, "Rationalized Law and Well Defined Water Rights for Improved Water Resource Management", Renewable Nature Resources: Economic Incentives for Improved Management, Paris, OECD, 1989.. Interestingly, where the flat rate was abolished
and water use was taxed on the basis of volume consumed in the Hunter Valley region in Australia, there was a significant drop in water consumedT
[FOOTNOTE] Paterson, John, former Director General of Water Resources, Victoria, Personal Communication, 24/4/1990..

The third type of pollution tax which has been implemented internationally is the product charge. A product charge is a direct addition to the price of a good, which when used is likely to leave contaminants in the environmentU
[FOOTNOTE] Barde, Jean Phillipe, op.cit., p.14.. According to Jean Phillipe Barde of the O.E.C.D.:
"Product charges are intended to modify the relative prices of the products, and/or to finance collection and treatment systemsV
[FOOTNOTE] Ibid..

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They have been applied to lubricants (France, Finland, Germany, Italy and Norway), mercury and cadmium batteriesS (Norway and Sweden), pesticides (Norway and Sweden) and a range of other potentially polluting productsW
[FOOTNOTE] Ibid.. The effect
of product charges has varied depending upon the size of the charge and the elasticity of demand for the particular item.

Thus there has been development of recycling technology as a response to charges placed on some goodsX
[FOOTNOTE] Ibid..

Administrative charges have been applied widely throughout Europe as a means of recouping expenditure by authorities on services related to the registration or supervision of potentially hazardous chemical or other products. Licence fees are a particular form of administrative chargesY

[FOOTNOTE] Opschoor and Vos, op.cit., p.67..

The final form of emissions charge which has been introduced by other states is tax differentiation. According to Barde, this type of impost:

"modifies the relative prices of products by penalising those harmful to the environmentZ
[FOOTNOTE] Barde, Jean Phillipe, op.cit., p.14.
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Tax differentiation has been used in Germany, the Netherlands and Scandinavia to encourage the purchase of unleaded rather than leaded petrol[
[FOOTNOTE] Opschoor and Vos, op.cit., p.70., and has contributed to considerable
changes in consumer preference\
[FOOTNOTE] Barde, Jean Phillipe, op.cit., p.14. Much of this change in sales may be attributed to government negotiation with industry..

The overriding characteristics of all these systems, is that the taxes have been imposed essentially as a means of raising revenue to facilitate clean up procedures, and not as aQ direct means of reducing pollution. Thus as the American commentator Robert Hahn has observed:
"The major motivation for implementing emission fees is to raise revenues, which are then earmarked for activities which promote environmental quality ... most charges are not large enough to have a dramatic impact on pollution]
[FOOTNOTE] Hahn, R., "Economic Prescriptions for Environmental Problems: How the Patient followed the Doctor's Orders", Journal of Economic Perspectives, Vol. 3, Spring 1985, p.107..

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Nevertheless, charges, which raise substantial revenue for environmental authorities have in many cases exceeded the initial purpose for which they were levied, and have led to a direct decrease in the level of industrial waste discharge.

"5.2.2 THE DUTCH EXPERIENCE.
Possibly the most successful application of effluent charges has been in the Netherlands. Excessive emissions of organic effluent into the national river system led to the oxygen starvation and consequent biological death of many rivers and streams^

[FOOTNOTE] Downing, P., op.cit., p.148..

About ninety percent of the organic pollution was produced by fourteen industries
[FOOTNOTE] Ibid.. Charges levied on these industries led to a sixty nine percent reduction in organic waste between 1969 80`
[FOOTNOTE] Ibid.. Importantly, the trend did not cease after 1980. By 1985, according to the researchers Brown and Bressers, the charges had induced a ninety percent decrease

in the level of organic effluent produced by the targeted industriesa
[FOOTNOTE] Brown, G., & Bressers, J., Evidence in Support of Effluent Charges, Twente University of Technology (the Netherlands), mimeograph, September 1986, p.10.. Whilst there was initial opposition from environmentalists who distrusted the market based systems of waste control, the unit charge approach was rapidly acceptedS by Dutch ecological groups after the results became apparentb
[FOOTNOTE] Ibid., p.10..

The Dutch system should be contrasted with the regimes employed in neighbouring Germany and France. In 1983 the effluent charge per unit in the Netherlands was $US17, whilst in Germany it was $6, and in France the charge was set at $2 per unit of wastec
[FOOTNOTE] Hahn, op.cit., p.105.. Significantly, both the French and German systems generally set the charges on an industry wide level where they are based on the "expected level of discharge by various industries"d

[FOOTNOTE] Ibid., p.104.. Thus, the regime offers little incentive to individual producers to decrease their output of toxic waste.

A further key difference between the German and Dutch legislative systems, is in those few instances where charges are calculated on the basis of waste generated by individual firms rather than industry wide averages. Under the Dutch system, charges are administered by reference to both the volume of water used and the actual concentration of toxicity. In Germany and France, however, where individual companies are monitored, the charges are calculated on the basis of the volume of water used, with an expected concentration of waste per unit of volume added to determine the chargee
[FOOTNOTE] Ibid., p.105.. Therefore, there is actually an incentive to increase the concentration of waste which is discharged.

Three major differences in waste control have resulted from the different legislative approaches employed in Germany, France and the Netherlands. The first, is that because the actual concentration of toxic wastes produced by individual firms is rarely monitored in France and Germany, there has] been no incentive to separate effluent into different streamsf
[FOOTNOTE] Brown, G., "Economic Instruments: Alternatives or Supplements to Regulations?", Environment and Economics, Environment Directorate, OECD, June 1984, pp.1 3.. In contrast, the Netherlands, according to O.E.C.D.g

[FOOTNOTE] Ibid. and other reports:
"Firms have devoted greater attention to separating waste water streams, because prices for disposal often varied by the type of waste streamh

[FOOTNOTE] Hahn, op.cit., p.106..

If waste is separated into different streams the effect is that individual compounds can not only be more readily identified, but also treated.

The second major difference between results generated by Dutch and neighbouring legislative systems, is in the general influence on company behaviouri
[FOOTNOTE] Brown & Bressers, op.cit., pp.12 13.. Dutch executives, when interviewed by Brown and Bressers, expressed their opinion that the charges had had a significant impact on their behaviour, and had fostered waste reduction through the adoption of:
"A variety of techniques which included reprocessing materials, treatment and input and output substitution.j
[FOOTNOTE] Hahn, op.cit., pp.12 13.

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In Germany and France however, companies have focussed more on the legislative system itself. They have spent much time on attempting to influence the rate of charges by lobbying Government. According to Brown and Johnson they have done this with considerable success¼k
[FOOTNOTE] Brown, G., & Johnson, R., "Pollution Control by Effluent Charges: It works in the Federal Republic of Germany. Why not in the U.S.?", Natural Resources Journal, 1984, Vol. 24, p.932..J
The ultimate difference between the two approaches to applying tax based pollution controls is in the level of ambient discharge itself. As mentioned, in the Netherlands there has been a 90% decrease in the discharge of organic pollutants since the imposition of effluent charges. In Germany and France there has been, according to the O.E.C.D., no substantial change in the level of effluent discharged by industrial producersl
[FOOTNOTE] Ibid.. Despite this fact water quality in these two countries has improved. What has occured, is that the revenue raised by the taxes has been applied to cleaning up waste which was formerly not removed.

In all of these examples, where pollution taxes have been applied to controlling water quality, one common feature has emerged emission charges have generated dramatic increases in revenue for local environmental authorities.

In the Netherlands, annual income leaped to $US300 million by 1980, after being negligible in 1969m
[FOOTNOTE] Downing, op.cit.. The effect was that in addition to the 90% decrease in the output of organic waste by Dutch companies, the Dutch environmental agencies were able to devote far greater resources to other problems

of pollution, notably repairing downstream damage created by upstream polluters in Germany, France and Switzerland. Similarly in France and Germany, far greater resources have been directed to repairing environmental damage, although as noted, actual levels of waste emissions have not dropped significantly.

The conclusion to be drawn from the overseas experience of pollution taxes, is that where they have been implemented on a widespread scale, they have represented an important means of expanding the revenue and autonomy of environmental agencies. Further, the Dutch experience is indicative of thef

fact that where legislatures have been willing to set realistically high tax levels, there has been a corresponding decrease in the output of toxic wastes discharged by individual firms. Importantly, the Dutch success is neither unique nor an unrepresentative example of the operation of such taxes. As discussed, the application of high tax levels to the disposal of industrial lubricants in Italy, Norway and Finland has compelled companies to develop new technologies for the multiple re use of oils which had been previously discardedn
[FOOTNOTE] Barde, Jean Phillipe, "The Economic Approach to the Environment", The OECD Observer, Vol. 158, June July 1989, p.14.. Similar success has occurred in Sweden with product taxes on the active ingredients in pesticides and fertilizers and in Finland with charges imposed on plastics and non returnable goodso

[FOOTNOTE] The Economist (editorial), "Making Polluters Pay", The Economist, 2/9/1989, p.9..

In short, the pollution tax has been found to work overseas, although only when charges have been set at high rates. If it is to be used in Australia, the next question must be: Under what constitutional authority would such a tax be imposed and by whom ?6

("6. CONSTITUTIONAL FEATURES OF THE TAX.f

The primary question regarding the constitutional foundation for a pollution tax, is whether it may be implemented by the States, the Commonwealth or both.

"6.1 CONSTITUTIONAL PROBLEMS WITH STATE IMPLEMENTATON.
The Parliaments of the States have powers to make laws on any subject they please for the peace, order and good government of their respective States except:
(a) in areas of exclusive Commonwealth power;
(b) in other areas denied them by the Constitution. For example over excises (s.90) and areas denied under general prohibitions such as s.92;
(c) in areas within the legislative competence of the Commonwealth but then only where there is inconsistent Commonwealth law in which, of course, Commonwealth law prevails to the extent of the inconsistencyp
[FOOTNOTE] s.109, Constition of Australia..

Control over natural resources therefore falls clearly within the residual powers exercisablel by the State. However, the potential hurdle which an emission charge would have to overcome if it were to be validly raised by the States, is that it must not be a duty of excise. If it were characterized as a duty of excise, then under Section 90 of the Commonwealth Constitution, the States would be prohibited from raising such a tax.

Obviously not all taxes will be a duty of excise. To determine whether a charge levied by the State will be invalid under s.90 as an excise, two questions must be asked: First, is the exaction a tax ? Secondly, if so, is the tax a duty of excise ?

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The leading definition of a tax for the purposes of s.90 is that laid down by Latham C.J in Mathews v Chicory Marketingi Board 1938 60 C.L.R263q
[FOOTNOTE] (1938) 60 C.L.R. 263, 267. and which was most recently approved by the High Court in Harper v Minister for Sea Fisheries (1989) 63 A.L.J.R. 687r
[FOOTNOTE] (1989) 63 A.L.J.R. 687, 693.:

FA"A tax is a compulsory exaction of money by a public authority for public purposes, enforceable by law, and .... not a payment for services rendered."
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Hence, for a charge to be prohibited by s.90 it must have both the positive and negative features of a tax.

There is little doubt that a pollution charge in the form we have advocated does possess the positive attributes which

earmark an impost as a tax. It is intended to be a compulsory exaction of money upon a particular class of people. It will be imposed by a public authority, be it the Environment Protection Authority or the Board of Works. Additionally, the nature of an emission charge is that it is for a public purpose, irrespective of whether that purpose is characterized as revenue raising or the conservation of natural resources.

If a pollution charge possesses the positive features of a tax, does it fall into:
"... the special types of exactions of money which are unlikely to be properly characterized as a tax ..."s

[FOOTNOTE] Air Caledonie International Ltd v The Commonwealth (1988) 165 C.L.R. 462, 466 467.
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In Air Caledonie International v The Commonwealth (1988) 165 C.L.R. 462 the Court held that in addition to "payment for a service rendered", the special types of exactions which will not be characterized as a tax included:
"... a charge for the acquisition or use of[property, a fee for a privilege and a fine or penalty ...t
[FOOTNOTE] Ibid., 467.

Therefore, if a charge which would otherwise be a tax is imposed as compensation to the State for any of the above activities undertaken at the State's expense then it will normally be valid under s.90.

What must now be assessed is whether the purpose of the tax is to compensate the State for the "use of property" or as a "fee for a privilege" or as a "fee for a service". The most recent High Court authority regarding the application of charges to the commercial exploitation of natural resources is Harper v Minister for Sea Fisheries. In that case, Brennan J. considered that a licence fee for abalone fishing was "of the same character as a charge for the acquisition of propertyu
[FOOTNOTE] (1989) 63 A.L.J.R. 687, 693.", and was therefore not a duty of excise for the purpose of s.90.Ë

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An important limiting feature was placed on the application of charges for the use of natural resources. Dawson, Toohey and McHugh JJ. held that for a charge on the use of a natural resource to be valid there must be "a discernible relationship with the value of what is acquiredv

[FOOTNOTE] Ibid., 693.". It is
not enough according to this view, that the exaction of money is used as "a means of ensuring the conservation of a natural resourcew
[FOOTNOTE] Ibid.". Thus they implied that the purpose of the charge is not determinative, but that its relationship with the value of the property acquired or used will determine whether or not it is a fee or a tax.
ZTheir Honours justified this view on the basis that there are alternative legal means by which the legislature may seek to restrict the appropriation or use of natural resourcesx
[FOOTNOTE] Ibid..
Despite this limitation, they recognized that a State law imposing a price for the right to appropriate or use a natural resource will be valid if it is set at a level commensurate with the value of the resource acquiredy
[FOOTNOTE] Ibid.

A second line of reasoning, and one which is possibly broader in its application, was that adopted by Mason CJ, Deane and Gaudron JJ. In obiter dicta they stated that:
"The right of commercial exploitation of a public resources for personal profit has become a privilege confined to those who hold commercial licences.z

[FOOTNOTE] Ibid., 688.

They held that the justification for restricting the use of public resources by economic methods, allowed society to be compensated for general limits on the availability of resources and the cost of repairing or replenishing that resource:
"It is an entitlement of a new kind created as part of a system for preserving a limited public natural resource, in a society which is coming to recognize that in so far as such resources are concerned, to fail to protect may destroy and to preserve the right of everyone to take what he or she will, may eventually deprive that right of all content{
[FOOTNOTE] Ibid..

We would argue that on the authority of these rulings, a tax on the discharge of toxic waste into air or water or onto public land would constitute a charge for "the use" of public resources or for exercising "a privilege" not available to others, and is therefore not a tax for the purposes of s.90.
]The reasoning supporting this analysis is that it has now become generally accepted that air and water are in fact "limited" or finite public natural resources. As the Brundtland Commission argued:
"Air and water have traditionally been regarded as "free goods", but the enormous costs to society of past and present pollution show that they are not

free.|
[FOOTNOTE] World Commission on Environment and Development, op.cit., p.264.

There is ample evidence to prove that the use of public air and water for toxic discharge can act in such a way so as to have a considerable effect upon the quality of these resources}

[FOOTNOTE] See Chapter 1.1. Thus the right to discharge industrial effluents may fairly be constituted as a "use" of public resource and a "privilege" not available to general members of the public, as contemplated by the Court in Air Caledonie International v The Commonwealth.

Even if an emission charge is for the "use" of a natural resource, the level and nature of that charge must still be within the limits imposed upon such exactions by the two interpretations in Harper v Minister for Sea Fisheries. The broader interpretation proposed by Mason CJ, Deane and Gaudron JJ. requires only that the charge be for the preservation of a natural resource, for it to fall into the category of an "entitlement of a new kind"~
[FOOTNOTE] (1989) 63 A.L.J.R. 687, 693. which may be granted by States so as to husband their resources. There is no requirement of proportionality in this statement, merely a requirement that the charge is imposed for the purposes of conservation.

On that basis, an emission charge imposed on each successive unit of discharge, would appear to conform with the] limitation, so long as the court would be willing to accept the concept that air and water were limited resources, the quality of which could be damaged.

An interesting outcome is that according to the broad interpretation, if the impost were merely a means of raising revenue and was not designed as a means of conserving the resource or as compensation for use of that resource, then it may well be invalid. Hence, unless it were set sufficiently high to represent an actual means of preserving a public resource or compensate for its use, then the charge may represent a tax and not a justifiable levy designed to restrict usage of the resource.

Even if the narrow perspective of Dawson, Toohey and McHugh JJ were adopted, we would argue that the proposed emission charges would be valid. The test which they propose asks whether there is a "discernable relationship between the value of the charge and the services rendered□
[FOOTNOTE] Ibid.". It may be argued that this encompasses exactions which represented the value to the community of either the lost resource, or of the cost of repairing the resource. However, their honours arguably adopted a commercial analysis in which "use" of a resources entailed actual control and exclusive possession of it. Nevertheless, their analysis is open to an interpretation that non exclusive access to a resource may constitute "use" of that resource.

If in the opinion of the Court, a charge were set too high to be a fair and reasonable compensation for the use of the resource then: "the exaction, at least to the extent that it exceeds the value [of the resource] may properly be seen as a tax."

[FOOTNOTE] Ibid.
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On that basis, we would argue that a charge set at the level required to return the resource to its undamaged condition (which would represent the value of the resource to the community in general) would be a tax under even a conservative interpretation of s.90.

It is interesting to note that the New South Wales Minister for the Environment, Tim Moore, describes the new waste discharge levies as "user charges", and does not anticipate any challenge to their validity
[FOOTNOTE] Moore, Tim, op.cit.. Similarly, the perception of the State opposition is that effluent charges clearly represent a payment for the use of a resource
[FOOTNOTE] Birrel, Mark, op.cit..

"5.1.2 IS THE POLLUTION CHARGE AN EXCISE DUTY?
If a pollution charge were found to be a tax, then it would not necessarily be a duty of excise. The decision of the High Court in Phillip Morris Ltd. v Commissioner of Business Franchises (1989) 63 A.L.J.R. 520 has confirmed that there is no settled definition of the factors which will cause a tax to be a duty of excise.

Historically, the cases have required that in order for a tax to be declared an excise, it must "directly affect commodities

[FOOTNOTE] (1938) 60 C.L.R. 263, 303.", or "bear a close relationship to their
manufacture
[FOOTNOTE] Ibid., 304.". This requirement was perceived as the "essential characteristic of a duty of excise
[FOOTNOTE] Bolton v. Madsen (1963) 110 C.L.R. 264, 271." by the Court in Bolton v Madsen (1963) 110 C.L.R. 264. In their joint judgment in Phillip Morris, Mason CJ and Deane J reject the view that directness represents a decisive test ofT whether a tax is an excise
[FOOTNOTE] (1989) 167 C.L.R. 399, 528.. There was however implicit support for an approach founded on the directness of the tax in the judgments of Brennan J.
[FOOTNOTE] Ibid., 549. and McHugh J.

[FOOTNOTE] Ibid., 555..

We would argue that even if the directness test stood, a tax on the pollution created by a product is not a tax on the product itself. The nature of the tax is such, that were the same effluent produced by a non commercial activity, then the tax would still be payable. Hence, the charge cannot be said to be a tax on the goods produced themselves.

Dawson J. suggested that a duty of excise may be a tax on manufacture, production, distribution or sale
[FOOTNOTE] Ibid., 545.. There is a possibility that an emission charge could be perceived as a

tax on the manufacture or production of a good. The effect of a pollution charge is in practice to impose an extra cost, which is theoretically allied to the value of manufacturing or other productive activity undertaken by an enterprise. However, close analysis of the way in which the tax is calculated shows that only the volume of effluent discharged by a firm would be assessed. Waste leaving the premises of an occupier may conceivably come from any number of sources, only one of which may be the basic productive process for which the premises is used. Consequently, a pollution tax would probably not be categorized as a tax on manufacture or production.

If a single feature can be drawn out of the judgment in Phillip MorrisË

Ë it is a tendency amongst their honours to adopt an interpretation of excise duties in which "substance is now more important than form

[FOOTNOTE] Ibid., 545.". This means that theZ purpose and effect of the exaction may ultimately determine if it is to be an excise duty. If the purpose of the charge is principally to raise revenue, then it may properly be characterized as an excise, whereas if its function is primarily regulatory, then it is therefore not an excise.

We would argue that the clear purpose of a pollution tax, if constituted in the way we have suggested, is to reduce and regulate the quantity of waste which is emitted both by individual polluters and at a societal level. Thus the function of the tax is primarily regulatory and cannot be described as an excise.

Even if all of the above arguments were incorrect, it would appear that Mason C.J. and Deane J. favour an approach in which a special category of goods, may because of their nature, be subject to excise like charges as a valid means of controlling them

[FOOTNOTE] Ibid., 439 440.. These goods may be identified as petrol, tobacco and alcohol, all of which can, be seen to generate serious externalities with which society must cope

[FOOTNOTE] Argument suggested by fellow student Marco Bini.. If such a category exists, it would not seem inappropriate to include a tax on pollution within it given that industrial waste is a cause of significant societal expense.

In conclusion, it appears that it would be possible for the States to levy an effluent charge without offending s.90 of the Ë

ËConstitutionË

Ë. A law imposing such a charge is unlikely to be declared a tax, as such imposts may be represented as a fee for the use of property or for a special privilege. If found to be a tax for the purposes of s.90, it seems reasonably likely that a pollution charge would not be characterized as a direct tax on goods or a tax on manufacture. Further, its purpose would appear to be regulatory and it may justifiably be included in a group of items, which for purposes of social redress, may be exemptedf

from the prohibition on the raising of excise duties by the States.

These last two arguments should also stand to defeat any challenges which may be raised under the banner of s.92.

It is now necessary to examine the Commonwealth's power to impose a pollution tax.

("6.2 CONSTITUTIONALƒ
("ISSUES INVOLVED IN COMMONWEALTH IMPLEMENTATION.ƒ

There are three main constitutional issues to be considered in the implementation of the pollution tax at the Commonwealth level. The first is the Commonwealth Parliament's power to levy the tax. The second is the Parliament's power to make laws authorizing the expenditure of the tax for the environmental purposes outlined in Chapter 3 of this paper. The final issue is the Commonwealth's power to pass valid laws to implement the broader environmental objectives of the regime.

"6.2.1 COMMONWEALTH POWER TO LEVY A POLLUTION TAX.
The constitutional authority for the Commonwealth to levy a pollution charge, is the taxation power, s.51(ii) of the Constitution. As has already been discussed in relation to State implementation of the pollution tax regime, there is little doubt that the impost is a "a compulsory exaction of money by a public authority for public purposes"

[FOOTNOTE] Matthews v. Chicory Marketing Board op.cit. p.276.. If imposed at the Commonwealth level the charge is likely to be a tax because, unlike at a State level, it will not be a "payment for services rendered" as the Commonwealth does not own the resources for which a service would be provided.

An objection to the charge might be raised for two reasons. First, the money is not being raised for a public purpose.i Secondly, it could be argued that the exaction was made to achieve a purpose that is outside the legislative power of the Commonwelath.

The first objection raised was dealt with in Logan Downs Pty. Ltd. v. Commissioner of Taxation (1965) 112 C.L.R. 177.The Wool Industry Act 1962 1964 contained a section appropriating from the Consolidated Revenue Fund a sum "equal to the amounts received by the Commissioner of Taxation in respect of tax imposed by any Wool Tax Act". A wool grower objected to a levy under the Wool Tax Act (No.1) 1964 on the basis that this provision of the Wool Industry Act revealed that the Parliament was not levying the tax for a public purpose. The Court held that whilst the Wool Industry Act revealed the purposes of the legislature in levying the tax, this revelation in no way affected the validity of the Act
[FOOTNOTE] (1965) 112 C.L.R. 177, 187.
because the Wool Tax Act should be read alone and, as such, was clearly a taxing act
[FOOTNOTE] Ibid., 186.

The pollution tax would present a very similar situation if the tax was imposed by one statute and appropriation occured by a separate statute. This form is necessary because of the limitation imposed by s.81 of the Constitution which has been interpreted to mean:
"All taxation moneys must pass into the Consolidated Revenue Fund (sec.81), where their indentiy is lost... there can be no earmarking of any Commonwealth Revenue.

[FOOTNOTE] State of South Australia v. The Commonwealth (1942) 65 C.L.R. 373, 414.

The pollution tax appropriation statute would take a very similar form to that of the Wool Tax Act, appropriating an amount equal to the amount raised by the pollution tax act. The pollution tax is therefore likely to be valid for exactly the same reason as the Wool Tax Act was held to be valid.a The second possible objection is that a pollution tax might not be for public purposes as it seeks to carry into effect a policy that involves more than merely raising revenue. In Fairfax v. Commissioner of Taxation (1965) 114 C.L.R. 1, the High Court held that it did not matter if a tax served some policy other than simply raising revenue, so long as the substance of the enactment was the imposition of the obligation to pay the particular tax. In Fairfax, the charge that was unsuccessfully objected to was an attempt to encourage investment in various government securities
[FOOTNOTE] (1965) 114 C.L.R. 1,2.. A
pollution tax act could be formulated so that its substance was the imposition of a tax on the production of pollution. This would ensure that no objection could be raised on the

ground that the tax was not for public purposes.

The more threatening argument to the implementation of the tax at a Commonwealth level is that while, in form, the act seems to be for the purposes of raising revenue, in substance its purpose is to regulate conduct which is not within the Commonwealth's power.

This argument has its origins in R v Barger (1908) 6 C.L.R. 41 where it was held that a law imposing an excise tariff was invalid because it involved an exemption for goods which were produced under good working conditions. The "real substance and effect" of the tax was held by the Court to be the regulation of labour, which exceeded the Commonwealth's power under s.51(xxxv). It has been said that this case is still good law: O'Sullivan v Noarlunga Meat Ltd (No.1) (1954) 92 C.L.R. 565, 595 and Grannall v Marrickville Margarine Pty. Ltd. (1955) 93 C.L.R. 55, 72.

Weighed against this view is a substantial body of cases which have held that the Commonwealth can use the taxation power to affect matters it would otherwise have no power toi control. It is important also to note Latham C.J.'s comments in Radio Corporation Pty. Ltd. v. The Commonwealth (1938) 59 C.L.R. 170. His honour held that in the light of High Court authority:

"...it is difficult to contend that an Act relating to taxation is invalid because it is designed for the purpose of carrying out a policy of the Commonwealth Parliament, which affects matters which are themselves not directly within the legislative power of the Parliament.
[FOOTNOTE] (1938) 59 C.L.R. 170, 179 180.

It is an understanding that has received the approval of the High Court in more recent times in R. v Bull (1974) 131 C.L.R. 203, where Barwick C.J. said:

"The attainment of... policies, though they may not form directly the subject of legislative power, is a constitutionally permissible use of the taxation power.
[FOOTNOTE] (1974) 131 C.L.R. 203, 213.

In addition, cases such as Logan Downs and Fairfax clearly stand for the principle that the Commonwealth can use the taxation power to acheive results outside its enumerated powers.

In the end, the question is one of degree as to just how far the Commonwealth can, in any particular case, extend the reach of the taxation power without it loosing its characterization as an act for the purposes of taxation. This question itself is very much affected by the approach the Court takes to characterization. Lane's analysis of the modern approaches the Court has taken to the characterization

of taxation statutes demonstates the difficulties of having them declared invalid and leads him to the conclusion:
"...since Barger the substance form argument has not had great success, least of all in taxation cases."

[FOOTNOTE] Lane, P.H., The Australian Federal System, Sydney, The Law Book Company, 1979, p.103. A`

If we follow the Court's reasoning in Fairfax, as Lane does, as illustrative of their approach
[FOOTNOTE] Ibid. pp.105 106., it can be shown that the pollution tax will probably be characterized as a valid exercise of the taxation power. The first step is to look to "the terms of the law"
[FOOTNOTE] (1965) 114 C.L.R. 1, 18.. The key question is whether or not the language of a taxation statute is used. The pollution tax act would be drafted in the language of a tax statute. Great care would have to be exercised in the provisions surrounding the setting of the actual level of the tax. It would be unnecessary to go into the exact process by which it was set. To do so, would very quickly make it look no longer like a tax statute as it would necessarily involve comments about goals of pollution reduction and the involvement of the E.P.A. in setting levels. The setting of the level could merely be left as a decision for the Governor General in Council.

If the executive is to set the actual rate of the pollution tax, an objection to this proceedure on the basis that it is the legislature alone which has the power to impose taxes is unlikely to succeed. It was held in Deputy Federal Commission of Taxation (N.S.W.) v. W.R. Moran. Pty. Ltd. (1939) 61 C.L.R. 735, that it was well within the power of the Parliament to vest in the executive the task of actually setting the level of a charge

[FOOTNOTE] (1939) 61 C.L.R. 735, 765.. This is precisely the approach envisaged for a pollution tax regime. It should be noted that in the later case of The Commonwealth v. Morton and Another (1968) 117 C.L.R. 383, where the issue was again raised, the Court declined to consider the validy of such an approach
[FOOTNOTE] (1968) 117 383, 388.. However, Issacs J. in Nott Bros. & Co. v Barkley
(1925) 36 C.L.R. 20, clearly rejected objections to the executive setting tax rates saying that such objections were "a cardinal error"
[FOOTNOTE] (1925) 36 C.L.R. 20, 29..

The second step is to examine whether or not the statute "creates duties, obligations or liabilities"
[FOOTNOTE] (1965) 114 C.L.R. 1, 16. which are beyond the Commonwealth's power. Therefore, if all the statute does is to impose a liability to pay tax which is clearly within power, as a pollution tax act would, there are no problems at this stage.

The third stage of the analysis in Fairfax was the finding that it is "irrelevant to inquire into the ultimate indirect consequences"

[FOOTNOTE] Ibid., 10 11. or into "the motives of the legislators"

[FOOTNOTE] Ibid., 11.. Therefore, it would not be relevant to inquire into the
economic effects of the pollution tax, which would be the reduction of pollution.

The final stage in determining whether the Commonwealth has power to levy a pollution tax is to consider whether in substance the law is for a non tax purpose
[FOOTNOTE] Ibid., 19.. Lane comments:
"In practice it would be difficult to find a law which was in substance more a law on non taxation than the 1961 amendment in Fairfax, and yet this was held to be a law dealing with taxation."
[FOOTNOTE] Ibid.A

The suggestion that the Court no longer takes this requirement very seriously should not need to be relied upon too heavily. Interestingly, Lane remarks in a footnote that if "the Commonwealth imposed a tax with an exemption for those who do not pollute" it might have have experiencedT problems, at least in Latham's time
[FOOTNOTE] Ibid., Note 40, p.101.. The fundamental difference between the present proposal and Lane's crude suggestion, is that an important component of a pollution tax is the raising of revenue. Further, when the Court views the act, the statute itself will show very little, indication of its pollution reducing characteristics. Thus it will have none of the blatancy of the provisions in Barger, It is also worth remembering that Barger was decided in 1908 during an anti centralist period in the High Court's history. It was a time when such overt attempts at expanding Commonwealth would have been viewed with far greater concern than they would today.

In passing, it is worth noting that there the the pollution tax would not "discriminate between states or parts of states" as it would be uniform throughout the nation.

Overall it would seem likely that will be no constitutional barriers to the Federal Government levying the tax.

It is also important to note that there should be no difficulties in supporting the penalty provisions of the pollution tax regime. Penalities do not derive their authority from the taxation power as they do not "impose taxes 'in their own right'"
[FOOTNOTE] Moore v. The Commonwealth (1951) 82 C.L.R. 547, 577.. Rather they are supported
either by the incidental power of the Constituion,

s.51(xxxix), or by the implied incidental power of the taxation power !

[FOOTNOTE] Re Dymond (1959) 101 C.L.R. 11, 25..

While on the topic of incidental powers, it is under this head that the pollution tax act would gain its validity in relation to the monitoring of polluters. This is because without the power to carry out checks on tax payers the taxing power would be ineffective. In such a situation therec is clearly an implied power: D'Emden v Pedder (1904) 1 C.L.R. 91, 110.

"6.2.2 POWER TO MAKE LAWS FOR ENVIRONMENTAL PURPOSES AND TO APPROPRIATE THE MONIES FOR ENVIRONMENTAL PURPOSES.
There are two broad options by which the Commonwealth may implement the pollution tax scheme. The first is that it could establish an environment protection authority which would carry out the functions envisaged in the pollution tax regime. This would involve monitoring polluters and then spending the revenue from the tax on a range of environmental programmes. The only function not carried out by this agency would be the actual collection of the revenue which would by done by the Australian Taxation Office as part of their normal function tax collection.

The second option, is for the Commonwealth to collect the revenue and return it to the States in s.96 tied grants for use by State environmental protection agencies.

The greatest constitutional problems arise with the first option. Recently the Federal Government raised the prospect of a considerable expansion of federal environment laws. Central to this plan is the idea of a Commonwealth Environment Protection Agency"
[FOOTNOTE] "First moves towards tougher standards", The Age, 15/6/90.. The Environment Minister,
Mrs Kelly, has received a cautionary minute from her department about the proposals. The minute warns that:
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Ì"...new environmental laws would be seriously hampered by legal challenges from the states... there is no specific environmental head of power in the Constitution. But the Commonwealth's direct and indirect powers under the Constitution enable a significant degree of Commonwealth intervention into environmental affairs."#
[FOOTNOTE] "When debate develops into a volley for power between governments", The Age, 15/6/1990.F
For the pollution tax regime to be validly implemented at a Federal level, it is necessary to demonstrate that the Commonwealth has power to establish an E.P.A.. It is envisaged that this body would at least have the functions of monitoring pollution, carrying out clean ups of contaminated sites, providing financial support to companies, engaging in and providing support for environmental research and developing environmental education programmes.

The monitoring function, as has already been outlined, could be maintained as incidental to the taxation power. As for the rest of the roles of the E.P.A., the only two heads of power under which these functions could be maintained are the corporations power (s.51 xx) or the external affairs power (s.51 xxix).

The Corporations power provides one avenue. This may provide the Commonwealth with power in relation to cleaning up contaminated sites. Companies which create pollution are almost inevitably involved in the manufacture of products for sale. Therefore they come within the requirements for being a trading corporation as trading activities represent a substantial or significant proportion of the firm's overall activities $
[FOOTNOTE] Tasmanian Dam Case (1983) 158 C.L.R. 1..

As a result of Brennan J.'s balancing judgment in the Tasmanian Dam Case the second question is whether or not the activity sought to be regulated is a trading activity of a trading corporation%
[FOOTNOTE] Ibid., 241..

There should be little difficulty implementing schemes that involve the provision of financial support to companies to help reduce their emissions, as these would directly affect their trading activities.
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A more substantial issue is whether or not such an authority could be given the power to clean up sites or require companies to repair their environmental damage. Arguably, if conduct which directly affects trading activities can be regulated as was held in Actors and Announcers Equity Association of Australia v Fontana Films Pty Ltd (1982) 150 C.L.R. 169, then situations which are directly affected by trading activities should be able to be regulated. Polluted environments are the direct consequence of trading activities. Barwick's comments in Stickland v Rocola Concrete Pipes Ltd (1971) 124 C.L.R. 468 that the approach to interpreting this power should not be narrow or pedantic should be remembered in this context.

However, the concept of "trading activities" has focused on the activities of existing corporations and not on the consequences of their activities. To expand the application of s.51(xx) to the results of the activities of trading corporations may be a step the High Court will be reluctant take, particularly in the light of the conservative approach it took in New South Wales, South Australia and Western Australia v The Commonwealth (1990) A.L.J.R. 64, 157 over the national companies legislation.

The corporations power would not appear to provide a basis for the regulatory components of a Commonwealth E.P.A.'s environment research or education programmes.

Another approach would be to try and rely on the external affairs power (s.51(xxxix)). The problem with this approach is that Australia's international obligations are unlikely to support the spending side of the tax, as a brief examination of this power will demonstrate. In determining whether or not a law is within the ambit of the external affairs power it is necessary first to see if the subject matter of the legislation is an external affair&
[FOOTNOTE] Koowarta v Bjelke Peterson (1982) 153 C.L.R. 168. and secondly if the lawi
in carrying the subject matter into effect, does so in a way capable of being "reasonably considered appropriate... to that end"'
[FOOTNOTE] Richardson v Forestry Commission (1988) 164 C.L.R. 261..

A matter is an external affair if it is one in respect of which Australia has a bona fide treaty obligation(
[FOOTNOTE] Koowarta v Bjelke Peterson, The Tasmanian Dam Case.. An obligation can exist in two ways. It may be created by the articles of a treaty through the use of phrases such as "shall". An obligation may arise as a result of the construction which the "international community would attribute to the Convention")

[FOOTNOTE] Queensland v Commonwealth (1989) 167 C.L.R. 233.. A matter may also be an
external affair if it is a matter of international concern even though there are no formal treaty obligations*
[FOOTNOTE] The Tasmanian Dam Case; Richardson v Forestry Commission..

Australia is a party to only a limited range of treaties in relation to pollution control, such as the Montreal Protocols which require a reduction in the use of chemicals damaging to the ozone layer. However, as the global implications of pollution have become more apparent, there is much work underway on broadening the range of international treaties in the area. On the vital question of global warming, the framework of an anti pollution convention is being worked on by the United Nations Environment Programme (U.N.E.P.):
"This would be a statement of recognition of the problem and of intent to take action. The setting of quantified targets will be a matter for one or more protocols.+
[FOOTNOTE] Pearce, op.cit., p.11.
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At best, however, these treaty obligations could support Commonwealth laws placing restrictions on the production ofU those, very limited number of pollutants that are subject to the treaties. Given the very tight requirements of the High Court that legislative actions be within the ambit of the international obligation, it seems most unlikely that actions such as site clean ups and environmental education programmes could be supported by these very limited treaty obligations.

It could be argued that pollution is itself a matter of international concern. Strength would be given to the argument by the transnational nature of pollution, which means that one country's pollution may have a direct effect on another or, as with greenhouse gases, global effects. Further, the problem of pollution, particularly in the northern hemisphere, is treated as a matter of international concern.

It is unlikely in the foreseeable future, that the High Court will be satisfied that the broad generality of international concern, is sufficient to provide a foundation for specific laws imposing a regime of essentially domestic application and effect.

An alternative approach would be for the Commonwealth to try and exploit the opening left by the A.A.P. Case,
[FOOTNOTE] Victoria v. Commonwealth (1975) 134 C.L.R. 81. which allows it to make appropriations for a purposes outside its power. In that case three judges held that these type of appropriations were invalid-
[FOOTNOTE] Barwick C.J., Gibbs, Mason JJ.. A counterpoising three held that they were valid.

[FOOTNOTE] McTiernan, Jacobs, Murphy JJ. whilst Stephen J., held that the
plaintiffs' did not have standing. The Commonwealth could again attempt such a scheme. However, such an approach would be of limited effect, as it would not provide power for the vital regulatory elements of the regime, such as the capacity to force companies to engage in clean up programmes. cTherefore, it seems likely that the Commonwealth has insufficient power to establish the necessary broad range of regulatory law which would be needed to make a federal regime fully effective.

The alternative to a Federal E.P.A. operating the features associated with a pollution tax, is to have the State governments implement the scheme on the Commonwealth's terms through s.96 tied grants. This would overcome the problem of environmental programmes, particularly clean up schemes, being outside Commonwealth power, as the Second Uniform Tax Case (1957) 99 C.L.R. 575 clearly established that the federal government can require expenditure on objectives outside its power. The Federal government could set national standards, thus avoiding tax differentials between the States and State bodies could monitor pollution and be directed to spend the money.

"6.3 SHOULD A POLLUTION TAX BE IMPOSED BY THE COMMONWEALTH OR THE STATES?
If a pollution tax can be steered through the constitutional shoals on which it may founder, then a decision must be made as to which tier of government may best implement it. This may be done either by the Commonwealth or the States. If the States were to be responsible for introducing the relevant legislation, then they may do so individually as New South Wales has already done, or co operatively. In this section we want to argue that whilst there are significant advantages in a legislative regime imposed by the Commonwealth, the optimal means of promulgating a pollution tax is through legislation by the States, preferably concurrent and uniform.

"6.3.1 ADVANTAGES IN IMPLEMENATION OF A POLLUTION TAX BY THE COMMONWEALTH.
The great advantage of Commonwealth implementation of the tax is that it would be required by s.51(xx) to impose it in a way that did "not discriminate between states or parts of States." The Federal government could set national standards,o thus avoiding tax differentials between the states, and state bodies could monitor pollution and be directed to spend the money. This would prevent the problems of competitive advantages and disadvantages being created by States levying the tax at different rates.

An environmental programme organized upon national lines is valuable both from an administrative and conservation perspective. At an administrative level, it avoids the
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risk

of incompatible laws which may be raised by neighbouring States.

Significantly, if as we have recommended/
[FOOTNOTE] See Chapter 4.1.3 an environmental tariff were to be introduced in order to protect Australian products subject to emission charges, from imports which were not, then it would appear that only the Commonwealth could do so. Section 92 of the Constitution prohibits the States from exacting customs and tariffs0
[FOOTNOTE] The relevant part of Section 92 reads: "On the imposition of uniform duties of customs, trade, commerce and intercourse among the States, whether by means of internal carriage or ocean navigation, shall be absolutely free.". If import levies were to be imposed, then it would seem a natural function for the Commonwealth to assume control of the charges levied, so as to avoid duplication of pricing policies between Federal and State Governments.

As transboundary pollution does not halt at State frontiers and many resource problems in one State are shared with or caused by activity in another, a single and coherent approach to waste control would seem desirable1
[FOOTNOTE] Ansell, Kay, "Competitive edge to environment concern", The Age, 15/6/1990.. Environmental organizations have argued strongly for greater synthesis of disparate policies by increasing the role of the Commonwealth in resource husbandry. Hence, the ACF submission to the Commonwealth on Ecologically sustainable Development argued:Z"International experience has shown that a nationally integrated approach to environmental management provides a better solution than a fragmented State by State approach.2
[FOOTNOTE] Hare, W.L. (Editor) et al, op.cit., p.64.

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The submission suggested five reasons why a unitary system of resource control is preferable to one more regionally based:
" ÌÌit prevents the problem from being transferred elsewhere within a country;A
ÌÌprovides for a more efficient choice of control measures;A
ÌÌbetter setting of priorities;A
ÌÌmore efficient co ordination with other policy sectors;A
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Ìsimpler administration and management.3
[FOOTNOTE] Ibid.
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Despite these undoubted advantages, there are still considerable problems with Commonwealth implementation of a pollution tax.

One difficulty of seeking to have the Commonwealth implement such a tax regime, is that in the past it has been very reluctant to become involved in the day to day administration of environmental concerns. A poignant recent example was the return by the Federal Government, to the States, of control over fisheries.

A second major problem is a distrust between the States and the Commonwealth over the centralization of power.

Difficulties remain with Federal States co operation. The recent debacle over national company legislation is demonstrative. Such tensions lie latent in a pollution tax, where a competitive advantage could be gained for companies in a State which did not co operate. If States proved unco[a]operative these difficulties could be addressed by the Federal Government establishing an agency to collect the tax.c Refusal by the states of tied grants to improve environmental quality would be improbable4
[FOOTNOTE] Davis, Bruce, "Federal State Tensions in Environmental Management: The World Heritage Issue", 1989, Vol. 6, Environmental and Planning Law Journal, pp.72 73.. However, application of such grants in the way intended by the Commonwealth cannot be guaranteed5

[FOOTNOTE] At the height of the controversy over Commonwealth attempts to prevent logging in the Daintree Rain Forest in North Queensland, the Bjelke Peterson Government continued to accept s.96 grants earmarked for road development and used them to carve an access road throught the forest!.

"6.3.2 WHY THE STATES SHOULD INTRODUCE A POLLUTION TAX.
Although these hurdles are not fatal to the Commonwealth's ability to impose an adequate regime for a pollution tax, we would nevertheless argue that the States are a more appropriate tier of government to implement such a system of charges. This is for two reasons. First, it is more practical for the States to impose a tax than the Commonwealth. Secondly, if a central government were to exercise dominion over the full range of a State's air, water and land resources then it may overstep the delicate and fragile balance of Federal State powers.

In practical terms, the States already have the environmental authorities6
[FOOTNOTE] Western Australia does not have an EPA and the strength of environmental authorities in Queensland and Tasmania is limited. necessary to implement an effluent tax. In Victoria, the E.P.A. is capable of easily adapting itself to fulfil such a role given sufficient initial funding7
[FOOTNOTE] Brotherton, Peter, op.cit.. This is in contrast to the multi million dollar cost anticipated

in establishing an entirely new authority, which would duplicate many of the functions currently undertaken at the State level8"
[FOOTNOTE] Peake, Ross, "First moves towards tougher standards", The Age, 15/6/1990..H
Further, the States already have Ministries which are equipped for and experienced in management of natural resources, in contrast to the Commonwealth's intended policy and remaining aloof from the ongoing supervision and administration of natural resources. It also appears that the constitutional ability of the Commonwealth to levy the tax is more likely to be fraught with difficulty than if the same path were pursued by the States9
[FOOTNOTE] See Chapter 6.2.. The Federal Treasury itself recognized this in a recent paper:
"In many cases 'best' measures may fall into areas of State/Territory or local government responsibility (e.g. allocation of access rights and pricing for timber and water, "charging and regulation of pollution and waste:
[FOOTNOTE] Department of Treasury (Commonwealth), op.cit., p.12.

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The Treasury also felt that it would be far preferable to leave power in the hands of the States, as opposed to implementing legislation without their consent or through financial coercion:
"Clearly it would be preferable to obtain co^operation from other levels of government to introduce 'best' measures rather than to proceed with less efficient and effective measures which happen to fall within the Commonwealth's domain.;
[FOOTNOTE] Ibid.

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Above any practical grounds for vesting legislative dominion on the States, is the issue of the Federal State balance of power. The growth in Commonwealth strength through expansion of the external affairs power has been most pronounced in the field of natural resources<
[FOOTNOTE] Davis, Bruce, op.cit., p.72.. We would argue that if the Commonwealth were to exercise control over the general use and quality of the basic air, water and land resources of a[State, then it would have overstepped its Federal compact with the States.

The role of the States in a Federal relationship was defined by Alexander Hamilton over two hundred years ago, as responsibility for:
"... the lives, liberties and properties of the

people and the internal order, improvement and prosperity of the State.=
[FOOTNOTE] Hamilton, Alexander, The Federalist, London, Fisher Unwin, 1787, p.290.

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Obviously the Federal relationship has changed dramatically in its transmission from one continent to another and in its passage through time. However, the thread of Hamilton's message remains valid today. That message is that a State should maintain control over its basic development, geography and population if it is to retain the character of an independent political unit. Perhaps most importantly, the tenor of the Treasury and the actions of the New South Wales Government indicate that both the Commonwealth and the States believe that waste control and management is both practically and rightfully the province of the States.
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(#"CONCLUSIONƒ

In this paper we have argued that the current regulatory regime for controlling industrial pollution is grievously flawed and should be replaced by a market based waste management system. The key component of this new regime should be the introduction of a pollution tax.

Melbourne is a city with a small industrial base relative to world standards. Yet it has heavy metal contamination in Port Phillip Bay equivalent to some of the highest concentrations found in Europe>
[FOOTNOTE] Divecha, Simon, op.cit.. This is but one sign that our regulatory
system of waste control has failed. The regulatory process is deficient in its formulation of legislative policy, and its inability to ensure adequate implementation and enforcement of environmental regulations.

In place of the current system, we have proposed the wide use of pollution taxes as a means of both raising revenue for environmental agencies and compelling polluters to decrease their emissions.

A pollution charge could we believe be validly imposed by either the States or the Commonwealth, although the States offer a more practical and desirable avenue through which they may be implemented.

Pollution taxes are only one means which governments may use in attempting to preserve the urban and natural environments. As well, action taken by governments will rarely succeed unless it is complemented by a community committment to rectify a common problem. Ultimateley it is by harnessing the natural economic forces which drive society that the pollution tax offers us an opportunity to exert greater control over our environment.
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