Putting the Pieces Together:

Sustainable Industry,
Environment Protection,
and the Power of Federal Government
in the USA and Australia.

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Acknowledgments

WA	Western Australia
WCED	World Commission on Environment and Development
WIN	Whip Inflation Now (USA)
WTO	World Trade Organisation
WWF	World Wide Fund for Nature

Introduction

The purpose of this thesis is to determine how effective a national government environment protection institution can be in making industry sustainable.[1] This is an important research project for four main reasons. First, privately owned industry has become the dominant mode of production around the world and is rapidly expanding. Second, it is clear that there are serious environmental and social problems associated with industrial production that may threaten life on this planet. Third, privately owned industry has generally been reluctant to address these problems. Finally, governments around the world have created new laws, policies and regulatory institutions in an attempt to make industry modify its use of the environment. These factors make the role of state institutions in addressing the environmental problems associated with industry critical to the long term survival of humanity and the planet. This research project is therefore worth undertaking.

Selecting a suitable subject for the study of this issue has major implications for the usefulness of this research. The particular institutional context selected was a liberal-democratic constitution, an elected parliament/assembly, the separation of judicial and legislative powers, and an industrially developed market-based economy. This context was chosen because these institutions are a common form of social, economic and political organisation around the world. It also allows for the USA to be a major focus of the case study material. The USA is important because it is currently the single most powerful force in the world and its politics, economics, and technology have influenced the institutional structure of many other countries. On top of this, the US is the world's single largest polluter, uses 25% of the world's resources, and has three decades of experience with government environment protection institutions at the national level. Australia

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[1] The terms "sustainability" and "sustainable industry" are defined in the glossary section of this introduction. A more extended discussion of sustainable industry is in chapter 6. See also Michael Jacobs, *The Green Economy: Environment, Sustainable Development, and the Politics of the Future*, (Pluto Press, London, 1991), pp. 86-93.

was selected for the other case study because it provides a useful contrast to the US approach.

A research project of this kind should meet five criteria for success. First, it should identify the major national government environment protection institutions and clearly describe and analyse their purpose, structure, resources and powers. Second, it should assess how effective these institutions have been. Third, it should examine how the policy goal of sustainable industry has been developed and deployed in both countries. Fourth, it should specify the role of environment protection institutions in achieving the sustainable industry goal. Finally, it should generate some broader implications for the relationship between business and government and the likelihood of achieving sustainability. The following chapters systematically fulfil these criteria.

Chapter one summarises the research process. The first two sections explain the choice and significance of the research question and case study subjects. The third section details the techniques used for data collection and analysis, including textual discourse analysis, the triangulation of texts with interviews and participant/observer data, and comparative techniques identifying strategic institutional differences. This chapter deploys a set of techniques, consistent with Foucauldian, constructivist and some critical theory, that explore the power relations implicit within the texts produced by the relevant political actors.

The second chapter sets out the theoretical agenda for assessing the nature of institutional power. It reviews various theories of institutional power and introduces a trans-structural hybrid. Under this theoretical framework, institutional power can be understood as a capacity to redirect the flow of resources through society and the state can be viewed as a set of semi-autonomous institutions that mediate between business, society and the environment. The context of social relations, discourses and institutions is a significant determinant of this capacity. This theory offers a useful agenda for assessing the case study material presented in later chapters.

Introduction

Chapter three analyses the governmentality (origins, structure, discourses, routines and theoretical powers) of the US Environmental Protection Agency (US EPA). The aim of this chapter is to explore how the state can reorganise itself when presented with a new set of discourses and perceived issues. It will be argued that the power and shape of new state institutions is strongly affected by the political space created by pre-existing discourses and institutions.

In chapter four, the ability of the US EPA to influence how industry behaves is explored via a series of case studies. These case studies are taken from a range of times, involve a variety of industries, and include claimed successes and failures of the agency. The objective is to specify the power of state institutions to overcome industry resistance. Overall it shows that the scale of environmental issues is far beyond the capacity of one agency to address and industry is often able to contain or constrain the capacity of the state to alter productive practices.

Chapter five uses the US EPA case study material to explore the difficulty of assessing the effectiveness of state institutions. Four methods of analysis are reviewed and compared: meeting goals set, tracking ambient environmental quality indicators, overcoming the resistance of industry, and redirecting the flow of resources. It is suggested that the last method, which is a corollary of trans-structural theory, is the most accurate and useful. Overall, the lesson of the US EPA's experience is that to be effective state institutions need better structures, new operating discourses, more coordination and a capacity to learn. They also need to construct a perceived interest for business to protect the environment.

The shift from regulation and institutional reorganisation to new policy formulation is considered in chapter six. This chapter demonstrates how the concept of sustainable development was progressively adapted to suit other national policy goals in the USA and Australia during the 1990s. Overall it is apparent that this adaptation has allowed industry to coopt the policy debate and avoid serious change. Despite this, with some reworking the concept of sustainable development may still serve some useful purpose in slowing down the rate of environmental destruction.

Chapter seven considers the Australian re-invention of environment protection institutions following its own deployment of the sustainable development policy debate. Australia has been more timid in national environmental regulation than the USA because of its unique social, economic and political institutional context, as well as the effective deployment of anti-regulatory discourses. These factors grant business a greater ability to resist environmental regulation than is possible in the USA and have reduced the effectiveness of state institutions.

The final chapter puts all the pieces together and derives some specific lessons for Australia. Several proposals are made regarding the deployment of active sustainable development policies within a restructured set of state and industry institutions. Programs that showed promise in the case study analysis are then presented as a way to make intervention more effective. The implications for achieving sustainable industry are then considered.

The method used in this thesis is a comparative study of the US and Australian institutions that uses a range of discourse analyses techniques for assessing primary material such as institutional reports, public announcements, internal documents and interviews with key personnel. These materials are triangulated with: (1) critiques from actors within the environmental policy debate, including business, industry organisations, active non-government organisations, the environmental movement, other government agencies, and special government inquiries, and; (2) analyses from "independent" sources such as academia, institutes, the OECD, and the UN. Australia was selected as the other half of the comparative study because it has some significant institutional differences and has taken a very different approach to environmental intervention at the national level. A comparative analysis of the USA and Australia should therefore indicate the relative effectiveness of different strategies of environmental intervention and the impact of different institutional arrangements. At least part of what is learnt from this analysis may be useful for many other countries.

The empirical research took two main tacks: literature searches and contact with people from the relevant institutions. Assistance with interviews and other research was given by the following organisations: the Commonwealth Environment Protection Agency; the National Environment Protection Council; the US EPA; the World Bank; and the National Environmental Policy Institute of Washington DC. The main Australian literature sources were: the University of Adelaide Barr Smith library; the Commonwealth Environment Protection Agency library; and the National Library of Australia. US sources included: INFOTERRA and the Pollution Prevention Clearinghouse at the US Environmental Protection Agency; the University of California at Berkeley library; and the Library of Congress. Internet sources consulted included those provided by: the US EPA; the Commonwealth Department of the Environment, Sport and Territories; the Organisation for Economic Co-operation and Development; the United Nations; and Greenpeace International.

Glossary of Key Terms

Throughout this thesis several terms will be used that require some explicit definition before proceeding. The definitions that follow are only a brief point of reference and they will be developed in more detail in the relevant chapters.

Constructivism

The version of constructivism that is used in this thesis is the school of thought that developed from American Institutionalism. Constructivism rejects the positivist claim that there is a real, external objective reality that can be known directly. Constructivism claims that individuals experience different versions of reality that are socially constructed. This construction occurs when sense data is selected, filtered and interpreted by the operation of an ideology, discourse, or corporate culture that is instilled in the individual by the institutions around them.[2]

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[2] Norman Denzin & Yvonna Lincoln, "Introduction: Entering the Field of Qualitative Research", in Norman Denzin & Yvonna Lincoln (eds.) *Collecting and Interpreting Qualitative Materials*, (Sage, London, 1998), p 27. Norman Denzin, "The Art and Politics of Interpretation", in Norman Denzin & Yvonna Lincoln (eds.) *Collecting and Interpreting Qualitative Materials*, (Sage,

Corporate Culture

The term "corporate culture" refers to the set of beliefs, assumptions, and values collectively held by an organisation. This culture is embedded within the mentality of employees through a process of selective recruitment of like-minded people and the socialisation of staff. It also manifests itself in the habits, operating routines, power structures and goals of the organisation. Corporate cultures influence what kinds of knowledge, expertise and actions are perceived to be legitimate. It also influences the way organisations such as companies, environmental pressure groups and state institutions respond to environmental issues.[3] It can be considered to be a manifestation of institutional discourse or governmentality.

Critical Theory/Neo-Marxism

Critical theory, also sometimes referred to as neo-Marxism, developed as an interdisciplinary analysis of the impact of capitalist institutions on social relations. The subject of analysis broadened from class and material circumstances to include other social divisions such as gender and race. This approach assumes the existence of both real material interests and an objective reality, but argues that peoples' perception of this reality is subverted by the ideology perpetuated by capitalist institutions. These institutions serve to entrench the power of a particular class, gender and/or race. The praxis for critical theorists/neo-Marxists is therefore an emancipation from oppressive institutions and ideology.[4]

Discourse

Discourse is used in the Foucauldian sense throughout this thesis. A discourse is a kind of localised ideology that reinforces power relations between people. Foucault argues that any unequal relation between people will lead to a force

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London, 1998), pp. 330-331. Ernst Haas, *When Knowledge is Power: Three Models of Change in International Organizations,* (University of California Press, Berkeley, 1990), pp. 8-9 & 21.
[3] Peter Cebon, "Corporate Obstacles to Pollution Prevention", *EPA Journal,* (July-September 1993), Volume 19, Number 3, p. 21. Joseph Petulla, *Environmental Protection in the United States: Industry, Agencies, Environmentalists,* (San Francisco Study Center, University of San Francisco, 1987), p. 88.

relation where one is dominant and the other subordinate. Associated with this force relation is a discourse that gives the dominant person strategically useful information about the subordinate and at the same time justifies the relation in the minds of both the subordinate and the dominant person. Discourses are a combination of socially constructed information, which can manifest themselves in compliant behaviour, ethics and beliefs. Power and knowledge are therefore inextricably linked through discourses. According to Foucault, there is a web of different discourses running throughout society. This web is a moving substrate in which discourses change, clash, reinforce, or merge. Each individual is constantly enmeshed in a web of multiple, changing discourses.[5]

Discourse/Text Analysis

Discourse or text analysis will be used in accordance with Foucauldian theory. The idea behind this analysis is to identify the inherent discourses and power relations on which texts are built. The analysis usually proceeds by identifying terms, language, categories and assumptions within the text that flag particular discourses at work. These are then made explicit and the interests being served by them may be identified.[6]

Governmentality

Governmentality was a term created by Foucault who gave it three meanings. The most common meaning of the term, and the one used in this thesis, is the mentality of both the governed and the governing that rationalises and legitimates the power of the state. It is a kind of discourse which gets subjects to accept the legitimacy of the existence and actions of the state, and guides state institutions in the design of power structures, as well as the ongoing calculations, routines and strategies of intervention. The other two meanings given by Foucault are: the

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[4] Denzin, pp. 331-332. Doug McEachern, *Business Mates: The Power and Politics of the Hawke Era*, (Prentice-Hall, Sydney, 1991), pp. 140-2. Pratap Chatterjee & Matthias Finger *The Earth Brokers: Power, Politics and World Development*, (Routledge, London, 1994), p. 3.

[5] Michel Foucault, *The History of Sexuality Volume I: An Introduction*, (Penguin Books, London, 1990), pp. 92-101.

[6] Denzin, p. 325. Lindsay Prior, "Following in Foucault's Footsteps: Text and Context in Qualitative Research", in David Silverman (ed.) *Qualitative Research: Theory, Method and Practice*, (Sage, London, 1997), pp. 64-5 & 70.

historical process where European states began to adopt this mentality, and; the general trend of state institutions to adopt this mentality.[7]

Ideology

In this thesis ideology is used in the neo-Marxist sense. The term may be used in a purely descriptive sense to outline a set of collective beliefs. It is more commonly used in a pejorative sense, however, to refer to a commonly held set of "beliefs, attitudes and wants" that are deliberately designed to instil a "false consciousness" in the population that hides their real interest in overthrowing the elite. The purpose of this ideology is to make the population accept the power of the ruling class and prevent them from challenging its authority and privilege.[8] Ideology in this sense is a single dominant device that is constructed, propagated and utilised by the ruling class to protect and advance their real material interests.

Institutions & Organisations

These terms are used in the constructivist and Foucauldian sense. Institutions are sets of rules, patterns of behaviour and ways of thinking that establish social norms and a sense of order. Organisations, on the other hand, are specific arrangements of people, money, buildings that have defined tasks and responsibilities. An organisation may be thought of as the physical embodiment of an institution.[9]

Institutionalism

Institutionalism is a post-war development of the behavioural approach taken by neo-liberal US political theorists. The key premise of this school of thought is that institutions are significant actors in determining political outcomes.

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[7] Michel Foucault, "Governmentality," in Graham Burchell, Colin Gordon & Peter Miller (eds) *The Foucault Effect: Studies in Governmentality,* (Harvester Wheatsheaf, London, 1991), pp. 102-103. Peter Miller and Nikolas Rose, "Governing Economic Life", in *Foucault's New Domains,* eds. Mike Gane and Terry Johnson, (Routledge, London, 1993), pp. 78-82

[8] Raymond Geuss, *The Idea Of A Critical Theory: Habermas and the Frankfurt School,* (Cambridge University press, Cambridge, 1981), pp. 12-3. Karl Marx, *Karl Marx: Selected Writings,* D. McLellan (ed), (Oxford University Press, Oxford, 1977), p. 164. D. McLellan, *Ideology,* (Open University Press, London, 1986), pp. 80-3. S. Hall & J. Donald, *Politics and Ideology,* (Open University Press, London, 1986), pp. 13-14.

[9] Haas, pp. 1-14. Barry Hindess, *Discourses of Power,* (Blackwell, Oxford, 1996), p. 112.

Institutionalism can be divided into four main groups: functional, political, historical and sociological.[10] The functionalists believe that the shape and purpose of institutions are determined economic forces and specific needs. Political institutionalists suggest that institutional arrangements are produced by, and facilitate political settlements where non-selected alternatives continue to be viable options. Historical institutionalism suggests that institutions arise from certain critical junctures in history, which set the development of countries on specific trajectories. Sociological institutionalists or constructivism see institutions as socially constructed and able to both shape, and be shaped by world-views, ideology, corporate culture, or discourse.

Sustainability

Sustainability refers to any human activity that can continue in the long term without causing environmental, social, economic or political crises.[11] Interpretations of the term vary. The business version assumes that the risks associated with current human activities are slight and therefore only minor improvements in business efficiency are needed.[12] The moderate version of sustainability requires changes in the behaviour of business, the state and society, but does not challenge the right of these institutions to use the environment as a resource.[13] A critical theory interpretation, that will be explored in this thesis, defines sustainability in a way that requires a major restructuring of society so that environmental and social impacts are given a high priority in decision making.[14] The most radical versions of sustainability propose a shift to small, autonomous

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[10] For a summary of some of the different forms that institutionalism can take, see the introductory chapter to Paul J. DiMaggio and Walter Powell (eds), *The New Institutionalism in Organiszational Analysis,* (University of Chicago Press, Chicago, 1991), pp. 1-38. They tend to divide up the school slightly differently, but the four groups of functional, historical, political and sociological are still present.

[11] Jacobs, pp. 70-80.

[12] Business Council of Australia, *Principles of Environmental Management,* (Business Council of Australia, Melbourne, 1992), p. 7.

[13] World Commission on Environment and Development [WCED], [with additional material from The Commission for the Future], *Our Common Future,* Chair Gro Harlem Brundtland, (Australian Edition, Oxford University Press, Melbourne, 1990 [original: 1987]), pp. 10-16.

[14] Dryzek, "Ecology and Discursive Democracy", *Capitalism, Nature, Socialism,* (June 1992), Vol. 3, No. 2, issue 10, pp. 31, 35, 37 & 41.

eco-communities and the abandonment of large scale industrial production, the market, private firms, big cities and centralised government.[15]

Sustainable Development

The most commonly cited definition of sustainable development is that offered by the World Commission on Environment and Development.

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:
> - the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
> - the idea of limitations imposed by the state of technology and social organisation on the environment's ability to meet present and future needs. Thus the goals of economic and social development must be defined in terms of sustainability in all countries - developed or developing, market-oriented or centrally planned. Interpretations will vary, but must share certain general features and must flow from a consensus on the basic concept of sustainable development and on a broad strategic framework for achieving it.
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> Development involves a progressive transformation of economy and society. A development path that is sustainable in a physical sense could theoretically be pursued even in a rigid social and political setting. But physical sustainability cannot be secured unless development policies pay attention to such considerations as changes in access to resources and in the distribution of costs and benefits. Even the narrow notion of physical sustainability implies a concern for social equity between generations, a concern that must logically be extended to equity within each generation.[16]

The concept of sustainable development will be explored in more detail in chapter 6, but this definition provides a useful starting point.

Sustainable Industry

There are various definitions of sustainable industry. Jacobs offers the most comprehensive version requiring productive activity to interact with the environment in such a way that: the dependence on non-renewable resources is reduced so that the ratio of demand to supply is maintained; renewable resources

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[15] Murray Bookchin, *Which Way for the Ecology Movement?* (AK Press, Scotland, 1994), p. 34.
[16] WCED, p. 87.

are used at or below the rate of their replenishment; the type and level of waste produced can be easily assimilated by the immediate environment; the degree of amenity and biodiversity is not reduced; and the environmental services of "climate regulation, geochemical cycling" are not threatened.[17] The World Commission on Environment and Development defines sustainable industry as those that are "more efficient in terms of resource use, that generate less pollution and waste, that are based on the use of renewable rather than non-renewable resources, that minimise irreversible adverse impacts on human health and the environment."[18] The Australian Ecologically Sustainable Development Working Group on Manufacturing defines sustainable industry as:

> Recycling (and reusing) also offer ways by which to reduce the amount of resources we use and to limit substantially the wastes associated with consumption. ... The ultimate objective is to achieve a closed loop process, to the extent possible. However, in practice the total elimination of waste products will be difficult to achieve; they must therefore be carefully disposed of in a way which encompasses the social costs of waste disposal.[19]

The definition offered by Jacobs will be adopted throughout this thesis because it is the best application of the original sustainability idea.

World View

The term "world view" is used in the sense adopted by critical theorists such as Habermas and his followers. A world view is a "subset of beliefs which constitute the ideology of the group".[20] These beliefs are connected and shared by the members of a group, they are central, deeply held, and influence the behaviour of members of the group. Different groups may have different world views and the "public sphere" of political debate may alter world views.[21]

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[17] Jacobs, pp. 86-93.
[18] WCED, p. 257.
[19] Ecologically Sustainable Development Working Group, *Final Report - Manufacturing*, (Australian Government Publishing Service, Canberra, November 1991), p. 4.
[20] Geuss, pp. 10-11.
[21] Jurgen Habermas, "Towards a Theory of Communicative Competence", *Inquiry*, (Winter 1970), 13, pp. 360-375. John Dryzek, "Ecology and Discursive Democracy: Beyond Liberal Capitalism and the Administrative State", *Capitalism, Nature, Socialism*, (June 1992), 3(2), issue 10, p. 32.

Chapter 1

The Subject of Method

Introduction

This chapter is a summary of the research process that created this thesis. The first section explains the choice of the research question and its importance. Section two justifies the selection of the USA and Australia as case study subjects. In section three, the techniques of data collection and analysis are outlined in detail and related to current literature on research methods. The final section introduces the concept of a research strategy that links method and subject to theory. It is argued that this project is worthwhile and that the most appropriate research method is a combination of discourse analysis, triangulation and comparative techniques.

1) The Research Question

Consider the original research question: how effective can a national government environment protection institution be in making industry sustainable? This immediately begs two further questions: why is this question being asked? and is it worth asking?

There is a specific agenda underlying this project, making it an exercise in what Spradley calls strategic research.[1] The objective is to find a practical strategy for effective government intervention that can help solve serious environmental problems. In part this purpose stems from the researcher's personal and professional concern with environmental problems. It also stems from the Commonwealth Department of Environment's initial interest in, and support for, the research. Denzin

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[1] James Spradley, *The Ethnographic Interview*, (Holt, Rinehart & Winston, New York, 1979), p. 15.

and Lincoln point out that it is necessary to locate the researcher within an interpretive community in order to explain how the choice of research topic is made.[2] The research methodology adopted is outlined in section three, and the theoretical perspective will be developed in the following chapter.

The next point concerns whether this research question is worth asking. As Vogel and Kun point out, over the last three decades the environment has become a focus for concern in most countries and the kinds of issues faced are often similar.[3] A complete delineation of these issues would fill an entire thesis on their own, but it is sufficient here to indicate why they are important. I would argue that environmental issues are a complex set of incidents and ongoing problems that have only recently been acknowledged and grouped together as a policy domain. Box 1.1 outlines some of the major environmental incidents over the last fifty years.

Box 1.1: Major Environmental Incidents[4]

1952, England: For five days London was clouded in a smog that killed more than 2,000 people with pre-existing respiratory problems. A new Clean Air Act was passed in 1956 to cut smog causing emissions.
1956, Japan: The Chiso company released large amounts of Methyl Mercury into Minimata bay causing debilitating illnesses, birth defects, and over 100 deaths. The situation persisted for many years because authorities were reluctant to act against the company. In total about 10,000 residents were affected.
1969, USA: The Cuyahoga river became so polluted that it caught fire. This was one of the incidents that spurred the US Federal government into a new phase of environmental regulation that led to the creation of a new Environmental Protection Agency.

[2] Norman Denzin, & Yvonna Lincoln, "Introduction: Entering the Field of Qualitative Research", in *Collecting and Interpreting Qualitative Materials*, eds. Norman Denzin & Yvonna Lincoln, (Sage, London, 1998), p. 23.

[3] David Vogel & Veronica Kun," The comparative study of environmental policy: a review of the literature" in Meinolf Dierkes, Hans Weiler & Ariane Antal, (eds), *Comparative Policy Research: Learning from Experience*, (Gower, Aldershot, 1987), pp. 99-100.

[4] Most of these examples, and many others, can be found in Robert Paehlke (ed), *Conservation and Environmentalism: An Encyclopedia*, (Garland Publishing, New York, 1995). See also: Andrew Rowell, "Shell-Shocked: The environmental and social costs of living with Shell in Nigeria," [http://www.greenpeace.org/~comms/ken/over.html], July 1994. Greenpeace, "10th November 1996: 1st Anniversary of the Death of Ken Saro Wiwa," [http://www.greenpeace.org/~comms/ken/anniv01.html], November 1996, and Lewis Simons, "Indonesia's Plague of Fire", *National Geographic*, (August 1998), Vol 194, No.2, pp. 105-7.

1978-80, USA: About 500 households were relocated from the Love Canal housing development (Niagara Falls) after it was found that chlorinated hydrocarbons and dioxins were leeching into the backyards of homes. It had been discovered that the estate was built on top of an old chemical waste dump several years earlier, but the residents had a long battle to get the State and Federal governments to act.

1984, India: A Union Carbide chemical plant in Bhopal, released a cloud of methyl iso-cyanate that killed 3,500 people and injured 15,000. It took almost a decade for the victims and their families to win compensation from the company.

1986, Ukraine: One of the four nuclear reactors at Chernobyl caught fire, releasing a plume of radioactive material that spread across Europe. Over 100,000 people had to be evacuated from the region, 18,000 needed medical treatment and 100 died. It has been estimated that between 50,000 and 100,000 people will die of radiation related illnesses over 50 years.

1989, Alaska: The oil tanker Exxon Valdez ran aground in Prince William Sound spilling 50 million litres of oil, killing bird life and devastating local fish breeding grounds. Eight years after the spill only one species had fully recovered.

1991, Australia: Over summer some 1,000 km of the Darling river filled with blooms of toxic blue-green algae, making the waters poisonous to animals and hazardous to people. The bloom was blamed on agricultural fertilisers being washed into the river from surrounding farm lands and was of particular concern to the city of Adelaide which draws up to 60% of its water supplies from the Murray-Darling system during summer.

1995, Nigeria: Ken Saro Wiwa, an activist who campaigned for the rehabilitation of traditional Ogoni lands polluted by the operations of Shell Oil was killed by the Nigerian military government. This brought attention to the environmental damage done to the region and the violent repression that has led to the deaths of over 1,000 Ogoni people.

1997, Indonesia: The extensive burning of vegetation led to a smoke haze covering eight countries and affecting the health of 75 million people over a period of 3 months.

Beyond these immediate incidents there is a range ongoing problems, including: the depletion of natural resources; the loss of biodiversity; the pollution of surface waters and oceans; land degradation and contamination; declining air quality (particularly in cities); and the release of toxic substances. [5] These problems occur at all levels of politics: local, national, regional, and global.

This data suggests that environmental issues are serious, global and require effective state intervention. The original research question is therefore worth asking.

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[5] Merchant, Carolyn, *Radical Ecology: The Search for a Liveable World,* (Routledge, New York, 1992), pp. 17-40; Christopher Flavin, "The Legacy of Rio," *State of the World 1997,* [http://www.worldwatch.org/pubs/sow/sow97/ch01.html], January 1997. State of the Environment Advisory Council, *State of the Environment Australia 1996,* [http://www.erin.gov.au/portfolio/dest/soe96/soeexec2.html], 1996. World Commission on Environment and Development, [with additional material from The Commission for the Future], *Our Common Future,* Chaired by Gro Harlem Brundtland, (Australian Edition, Oxford University Press, Melbourne, 1990), pp. 139-304.

2) Choosing Appropriate Subjects

Having established the importance of this project, the next question is how to conduct the research. While environmental issues affect all states, there are enormous variations in the technical, economic, social, and political circumstances around the world. Trying to study the individual situations of 185 nations is well beyond the resources for a PhD thesis. What is needed is an approach that generates both a manageable workload and significant results. With this in mind, the project was constructed as a comparative case study of national government environment protection organisations in the USA and Australia, and their relation to national policies on sustainable industrial development.

Denzin and Lincoln point out that case studies are often used by researchers in conjunction with other methods "to get a better fix on the subject matter at hand."[6] They have also been used very successfully by researchers like Yin, whose data collection methods will be discussed later.[7] Knoepfel, et. al., argue that conducting comparative case studies in the environmental policy field is particularly useful for both the testing of hypotheses and the identification of general principles.[8] Vogel and Kun, in their extensive review of comparative environmental policy research, found that limiting the subject to only two states generates a more manageable workload for individual researchers.[9] These factors support the choice of method.

The selection of the USA and Australia as subjects can be justified on several grounds. First, the USA is often chosen for comparative environmental policy studies because of its long experience with environmental regulation and the openness of the political system that makes gathering data easier.[10] Second, it is common for

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[6] Denzin & Lincoln, p. 3.
[7] David Yin, *Case Study Research: Design and Methods,* (Revised edition, Sage, London, 1989), p. 102.
[8] Peter Knoepfel, Lennart Lundqvist, Remy Prud'homme & Peter Wagner, "Comparing environmental policies: different styles, similar content", in Meinolf Dierkes, Hans Weiler & Ariane Antal (eds.) *Comparative Policy Research: Learning from Experience,* (Gower, Aldershot, 1987), p. 181.
[9] Vogel & Kun, p. 141.
[10] Vogel & Kun, p. 103.

researchers to choose their home country (in this case Australia) as part of the comparison because of their familiarity with the subject and a desire to keep costs manageable.[11] Vogel and Kun mention these pragmatic points but also list three criteria for the selection of subject countries: 1) the significance of the country to the problem; 2) a commonality of features between the two countries to make the comparison meaningful, and; 3) that the differences between the two cases lead to useful insights into the working of political systems.[12] They also stress the importance of comparability between the two cases (which is a corollary of their second criteria).[13]

In terms of significance, the USA is the world's single largest polluter; its economy constitutes approximately one quarter of the world's total economic system, and it consumes one third of the world's resources.[14] This means that if significant amelioration of environmental damage is to be achieved and if industry is to become sustainable, the US will have to play a major role. A second point is that the USA has had almost three decades experience with a national Environmental Protection Agency. The lessons from this experience may be helpful to other countries as market-based economics and liberal democratic political systems become more common. The US is often used as a model for development, so the US domestic experience will have major implications for many countries.

In terms of the other two criteria (commonality/comparability and significant differences), the comparison of Australia with the USA can be justified on the basis of the technical, economic, social, political and ecological dimensions of industrial development in both countries. These dimensions are not arbitrarily chosen, they are implicit within the concept of sustainable development as outlined by the report from

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[11] Vogel & Kun, p. 141.
[12] Vogel & Kun, p. 143.
[13] Vogel & Kun, p. 148.
[14] Central Intelligence Agency, *World Factbook 1996*,
[http://www.odci.gov/cia/publications/nsolo/factbook/us.htm], June 4, 1997.

the World Commission on Environment and Development.[15] This report became the basis of sustainable development policy making in the USA and Australia and the five dimensions were carried over into their respective national policies.[16] This point will be developed in more detail in chapter six.

The technical dimension of development is important because it determines what type of production is possible within a society. The money spent on research and development (R&D) will be an indication of the level of available technology. Three financial indicators will be important: the level of R&D investment undertaken by the domestic industrial sector; the net value of technological imports available to the sector; and the question of who controls this investment and hence the technology.

During the period 1986 to 1988 (at the mid-point of the period being studied and the time when the US policy of promoting pollution prevention technology began) the percentage of production re-invested in R&D by the manufacturing sector was 3.4% in the USA and 0.6% in Australia. The percentage of investment in high technology was 11.8% for the US versus 2.4% for Australia (high technology investments included electronics, pharmaceutical products, motor vehicles, non-metallic minerals and petroleum refining).[17] By 1990, America spent US $3,133 million on technology and exported US $13,337 million. Australia spent US $276 million of which US $57 million was imported.[18] The percentage of total R&D funded by industry in the USA was 71%, with the government funding 29% (much of which was spent on developing military technology). In Australia, industry's share was 94%, government had 4%, while 2% came from overseas.[19]

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[15] World Commission on Environment and Development, pp. 8, 87, 109, 274-276, 305 &387.

[16] ESD Steering Committee, *National Strategy for Ecologically Sustainable Development*, (Australian Government Publishing Service, Canberra, December 1992). p. 8. President's Council on Sustainable Development, *Final Report*, [http://www.whitehouse.gov/WH/EOP/pcsd/Council_report], March 1996, pp. 26-7.

[17] Organisation for Economic Co-operation and Development [OECD] *Industrial Policy in OECD Countries: Annual Review 1993*, (OECD, Paris, 1993), p. 127.

[18] OECD, *Industrial Policy*, pp. 121 & 129.

[19] OECD, *Industrial Policy*, p. 123.

These figures indicate two things. The first is that during the case study period, US manufacturers may have had more options with regard to selecting appropriate production technology than their Australian counterparts, although this may have been moderated by Australian companies importing selected technology. The second point is that the development and deployment of technology in both countries is largely in private hands (slightly more so in Australia). This suggests that the ability of the state to influence the development of productive technology is limited.

Despite the many similarities between Australia and the USA, it is apparent that there are major differences in their economies (see Table 1.1). Overall the US economy is bigger, more diverse, relatively less exposed to the demands of the world market, and directs a slightly lower proportion of GDP through its national public sector despite spending a greater percentage of public funds on the military.

Table 1.1: The US & Australian Economies[20]

	USA	Australia
Population	266 million	18 million
GDP (1995 US $)	7, 247 billion	405 billion
Agriculture (% GDP)	2%	3.1%
Industry (% GDP)	23%	27.7%
Services (% GDP)	75%	69.2%
Exports (1995 US $)	578 billion	51 billion
Federal or Commonwealth budget expenditure (1995 US $)	1,461 billion	95 billion
Main Industries	petroleum, steel, vehicles, aerospace, telecommunications, chemicals, electronics, food processing, consumer goods, timber, mining	mining, industrial and transportation equipment, food processing, chemicals, steel

The social dimensions of development in both countries are more difficult to quantify. Both are relatively young nations which began as a collection of British colonies. Both were heavily influenced by 18th and 19th century liberal-democratic

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[20] Figures are taken from the CIA, *World Factbook 1996.*

ideas.[21] Both imposed European settlements on indigenous cultures.[22] There are major differences, however, not the least of which is the size and ethnic mix of their respective populations. Historically, the US developed over a longer period of time and absorbed colonies from Spain and France. It has also had to face the consequences of the slave trade, a major civil war, and an extremely rapid influx of migrants during the 19th and early 20th century. Australia, on the other hand, has developed more slowly. For most of its history the White Australia policy meant that the majority of the population were of European (particularly Anglo-Saxon) origin.[23] As a consequence, the US is not only larger but more culturally diverse. Social divisions based on wealth and race have become a factor in US environmental issues. An environmental justice movement emerged from communities that seem to suffer more from environmental problems, particularly among lower income African and Hispanic American groups.[24]

In terms of politics, both countries are constitutional federations with three levels of government: Local, State and Federal (or Commonwealth). Both national political systems were designed by constitutional conventions of the colonies that were to become States. Both have State governors and legislatures, although the governors are only figureheads in Australia. Both have bicameral national legislatures with lower house electorates based on population and a senate with equal representation by all states. Both have State and Federal legal systems based on the English common law model.[25]

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[21] Rod Hague, Martin Harrop & Shaun Breslin, *Comparative Government and Politics: An Introduction*, (4th edn., Macmillan, London, 1998), pp. 151-5.
[22] Chandran Kukathas, "Cultural Rights in Australia", in Brian Galligan, Ian McAllister & John Ravenhill (eds), *New Developments in Australian Politics,* (Macmillan, Melbourne, 1997), pp. 168-74.
[23] Dean Jaensch, *The Politics of Australia*, (2nd edn., Macmillan, Melbourne, 1997), p. 336.
[24] Marc Landy, Marc Roberts & Stephen Thomas, *The Environmental Protection Agency: Asking the Wrong Questions - from Nixon to Clinton*, (2nd. Ed., Oxford University Press, New York, 1994), p. 308; US EPA, *The New Generation of Environmental Protection: EPA's Five-Year Strategic Plan,* (Office of the Administrator, Washington DC, July 1994), pp. 13-4.
[25] Hague, pp. 168-175 & 186-7. Kenneth Murchison, "Environmental Law in Australia and the United States: A Comparative Overview", *Environmental and Planning Law Journal,* Part I (June, 1994), Vol. 11, No. 3, pp. 179-192, and Part II (August, 1994), Vol. 11, No. 5, pp. 254-273

On the difference side, the US political system separates the executive function from the legislature. At the Federal level, this means an independently elected president who appoints their own cabinet.[26] Further, the party system in America is less binding on its members, with politicians often being more influenced by lobby groups such as Political Action Committees (PACs) than their party.[27] Finally, the US Constitution includes a bill of rights and access to the legal system is easier. In Australia the executive is a subset of the legislature and political parties rely on tight party loyalty within the parliament.[28] The Australian constitution does not have an explicit bill of rights and access to the courts depends on the ability to prove legal standing. This is why litigation has been more prominent in the US than Australia, particularly with regard to environmental issues.[29]

Scale is also a significant political factor. The Commonwealth has only six State and two Territory governments to negotiate with, the US has fifty. Australia has fewer major industrial production sites, there were 31,606 compared to 347,000 in the USA in 1987 (when pollution prevention programs began).[30] These differences have allowed Australia to take a more cooperative federal/state approach to environmental regulation. They have also allowed Australian authorities to deal with developments on a case by case basis, which would be difficult for America.[31]

In terms of ecological sustainability, both countries face similar choices regarding the inputs and outputs of industry. Obviously there will be common concerns about air and water quality, as well as land degradation and hazardous waste. There are, however, significant differences arising from the unique geography, development patterns and population distribution of each country. The US, for example, has vast quantities of surface water because of the Great Lakes and the Mississippi river

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[26] Hague, pp. 203-206.
[27] Hedrick Smith, *The Power Game: How Washington Works,* (Fontana/Collins, Glasgow, 1988), p. 248, 347, 919.
[28] Jaensch, p. 125.
[29] Murchison, p. 261.
[30] OECD, *Industrial Structure and Statistics 1991,* (OECD, Paris, 1993), pp. 11 & 157.

system. Australia is relatively poor in terms of surface water and often has to rely on ground-water. This has been a major concern for developments in arid regions. Further, many urban environmental problems are exacerbated by the high population density of the larger American cities.

These technical, economic, social, political, and ecological differences have manifested themselves in the way environmental issues are constructed in each country. First, the focus in Australia has mainly been on conservation issues.[32] In the US, the focus has generally been on pollution and public health in the east, and conservation in the west. This may be because the scale of industrial development has been much smaller in Australia and this led to fewer public health issues. Further, the Australian economy relies far more heavily on agriculture and mining, whereas the US has a significantly bigger manufacturing and chemical sector.[33] Second, environmental movements in the US tended to pursue issues through the courts, because access to the legal system is much easier than in Australia. Third, the Australian environmental debate was not spurred on by an equivalent set of national incidents (such as the Cuyahoga river, Love Canal, or the Exxon Valdez), perhaps because the scale of industrial development is lower and therefore the likelihood of a serious accident is less. Fourth, the Commonwealth government is more reluctant to intervene, in part because it lacks the broad constitutional powers that are granted to the US Federal government. Finally, differences in electoral systems have had a significant impact on the ability to participate in parliament. Proportional representation allowed environmentalists to gain seats in the Tasmanian House of Assembly and the Commonwealth Senate, but single member, first-past-the-post constituencies kept them out of the US Congress.[34]

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[31] This point was made by Barry Carbon, Executive Director of the Commonwealth Environment Protection Agency, when I interviewed him in Canberra, September 22, 1994.

[32] Tim Doyle & Aynsley Kellow, *Environmental Politics and Policy Making in Australia,* (Macmillan, Melbourne, 1995), pp. 8-9.

[33] See the figures previously cited in the Central Intelligence Agency, *World Factbook 1996.*

[34] Some of these points are covered in Murchison.

A final point is that the US and Australia have taken a contrasting approach to the sequence of policy development and institutional creation. The US created a strong Federal EPA in 1970 but only produced sustainable development policies in early 1996. Australia, on the other hand, developed a comprehensive national sustainable development policy earlier (in 1990) and moved to create a cooperative Commonwealth-State National Environment Protection Council later.

These strategic differences offer a useful contrast for analysing the effectiveness of environmental intervention by state institutions. They also provide an opportunity of comparing the relative merits of presidential and parliamentary political systems.

3) Method

Having argued that the research question is worth asking, and that the USA and Australia are comparable but significantly different, it is now time to consider the research method in more detail. Academic research consists of four steps: identifying a topic, collecting data, analysing the data, and developing theories. The first step has been dealt with in the previous two sections. This section will explain how the data was collected and analysed. Section four and chapter two will locate this work within a theoretical framework.

Data Collection

Data can be collected from three main sources: the analysis of texts (documents, speeches, or artefacts), conducting interviews, and acting as a participant/observer.[35] All three sources were used in researching this thesis, but the analysis of written materials was the more prominent.

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[35] Atkinson, Paul & Amanda Coffey, "Analysing Documentary Realities" in David Silverman (ed), *Qualitative Research: Theory, Method and Practice*, (Sage, London, 1997), pp. 45-46. T. May, "Documentary Research", chapter 8 in *Social Research*, (Oxford University Press, Milton Keynes, 1993), pp. 134-136. Yin, p. 84. Denzin & Lincoln, p. 3.

Chapter One

Texts and Documents

Atkinson and Coffey point out that in analysing organisations, the paper work that they produce is not only a valuable source of data, but its analysis is essential if the organisation is to be understood.

> Consider, for instance, an ideal-typical organisation. It goes virtually without saying that this quintessentially modern kind of social formation is thoroughly dependent on paperwork. Administrators, accountants, lawyers, civil servants, managers at all levels, and other experts or specialist functionaries are routinely, often extensively, involved in the production and consumption of written records and other kinds of documents. If we wish to understand how such organisations work and how people work in them, then we cannot afford to ignore their various activities as readers and writers.[36]

The texts produced by these organisations include: reports, prospectuses, financial accounts, records of personal and client interactions, case notes, etc.[37] Atkinsion and Coffey argue that it is a mistake to categories such materials as secondary because they "often enshrine a distinctively documentary version of social reality. They have their own conventions that inform their production and circulation."[38] Therefore these materials are actually the most valuable primary sources of data because they are a product of the workings of the organisation being studied and implicitly include the institutional mentality, operating routines and power relations. They also offer a view of how the organisation constructs its view of reality. It is noted, however, that such documents cannot be relied upon alone, they must be triangulated with other sources of data in order to understand the operation of the organisation.[39]

A literature search revealed that this approach is supported by a substantial cross-section of established and respected qualitative researchers. Denzin, Lincoln, Yin, Manning, Cullum-Swan, May, Vogel and Kun all agree that official documents are primary sources of data and suggest that the textual analysis of this data forms part of

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[36] Atkinson & Coffey, pp. 45-6.
[37] Atkinson & Coffey, p. 46.
[38] Atkinson & Coffey, p. 47.
[39] Atkinson & Coffey, pp. 47 & 55.

a range of techniques that constitute legitimate qualitative research.[40] Hodder also includes personal records among those documents ripe for analysis.[41] Feldman adds speeches and judicial proceedings in her data sources.[42] Vogel and Kun suggest that documentary textual analyses forms an important part of comparative environmental policy research, which makes it particularly relevant to this study.[43] Yin recommends that visiting the libraries of organisations being studied is an important part of the data collection process.[44]

All of these sources of data have been used in this thesis and have been treated as primary sources in accordance with the procedures outlined by the researchers listed. Government reports, internal documents, transcripts of speeches, press releases, conference proceedings, and transcripts of judicial investigations, have been used as primary data. These sources have been triangulated with similar texts from: (1) business, environmentalists, and non-government organisations, and; (2) academia, research institutes, the United Nations, and the OECD. Research visits were paid to the US EPA, the National Environment Protection Institute (Washington DC), the World Bank, CEPA and the NEPC to collect data. Documents were found in, the libraries of the University of Adelaide, the University of California at Berkeley, Flinders University, the University of South Australia, the Australian National Library, and the Library of Congress. Some on-line documents were also available from CEPA, the US EPA, the UN and the OECD.

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[40] Denzin & Lincoln, pp. 3 & 29. Yin, p. 84. Peter Manning & Betsy Cullum-Swan, "Narrative, Content, and Semiotic Analysis", in Norman Denzin & Yvonna Lincoln (eds.) *Collecting and Interpreting Qualitative Materials*, (Sage, London, 1998),pp. 247-248. May, p.133. Vogel & Kun, p 149.
[41] Ian Hodder, "The Interpretation of Documents and Material Culture", in Norman Denzin & Yvonna Lincoln (eds.) *Collecting and Interpreting Qualitative Materials*, (Sage, London, 1998), p. 111.
[42] Martha Feldman, *Strategies for Interpreting Qualitative Data*, (Sage, London, 1995), p. 53.
[43] Vogel & Kun, pp. 148-9.
[44] Yin, p. 87.

Chapter One

Interviews and Informants

The second form of data collection is the interviewing of key actors within the case study's domain. Extensive interviewing is favoured by empirical behavioural researchers and sociologists, particularly in the USA. In his classic handbook on research, Spradley recommends the extensive use of structured serial interviews with 40-50 subjects.[45] The aim of such work is to construct an "ethnography" which uses the analysis of language to identify cultural themes of the subject group.[46] These sorts of ethnographic techniques are not appropriate for this particular research project for three main reasons. First, the objective is not to construct a sociological ethnography of the employee cultures of US EPA, CEPA or the NEPC. The aim is to undertake a political analysis of the ability of such institutions to make industry sustainable. A second point is that sustainable development policies are not a cultural community of individuals that can be interviewed. They are texts produced by political institutions. Finally, in the course of this research it became apparent that it was simply not possible to conduct an extensive range of interviews with a large number of employees from all the organisations in the subject domain. Many of the institutional actors were not able to commit the time required for such interviews and, as May points out, the lack of some sources of data often affects the nature of the research.[47]

Other researchers have also found that extensive interviewing is not necessarily appropriate for their work. Vogel and Kun point out that Brickman deliberately chose to cut back interviews as a source of information in his study of US environmental policy.[48] Hodder, while accepting that some interviews may be useful, suggests that: "'What people say' is often very different from 'what people do.'"[49] Such a criticism can also be levelled at documents produced by organisations, which is why the triangulation of material from a range of sources is important.

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[45] Spradley, pp. 48-60.
[46] Spradley, pp. 178 & 186.
[47] May, p. 141.
[48] Vogel & Kun, p. 149.
[49] Hodder, p. 113.

Yin, suggests that interviews do not have to be highly structured or extensive to be useful. Open ended discussions with a few selected key informants can be part of a research project provided they are cross-checked and corroborated by other evidence.[50] Yin lists six sources of data that can be used to construct a "chain of evidence" from: "documentation, archival records, interviews, direct observation, participant-observation, and physical artefacts."[51] This strategy allows a few interviews with high quality informers to be part of the research project, without letting the interview process dominate data collection. The approach adopted during the research for this thesis was similar to Yin's method.

A series of interviews and meetings were conducted during 1994-96 with the then head of the NEPC Taskforce at the Commonwealth Environment Protection Agency, Brett Odgers. By virtue of his position and cooperative attitude, Brett was a high quality "informer" in the sense used by both Yin and Spradley.[52] He held a senior management position within CEPA and was given the task of helping to establish the NEPC. First contact was made during a visit to CEPA on September 19, 1994. This was followed up with a couple of informal meetings at which Brett provided documents regarding the structure and purpose of CEPA. A recorded, open-ended interview was conducted on September 21 that lasted for more than 1 hour. In this interview, Brett answered questions regarding: the reluctance of Western Australia to join the NEPC and their possible use of section 92 of the constitution; whether the Commonwealth should proceed unilaterally to create a national environment protection authority using selected constitutional powers; the relative importance of CEPA and the NEPC compared to other departments (eg. Treasury); whether NEPC decisions would be binding on the States; the level of public participation in the NEPC; attitudes of business towards the NEPC; the relationship between NEPC and the Australian and New Zealand Environment and Conservation Council (ANZECC); and the resources to be given to the NEPC.

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[50] Yin, p. 88.
[51] Yin, pp. 84-86.
[52] Yin, p. 88. Spradley, pp. 4 & 25.

Contacts with Brett continued over the next 3 years. These contacts included several follow-up phone discussions about specific topics that emerged from the research, and two more face to face meetings: one at CEPA on September 30, 1996, and a another on Monday, October 14, 1996 at an Institute of Environmental Management conference in Adelaide. At these two meetings we discussed a proposal for the restructuring of CEPA and the implementation of sustainable development policy that I was preparing at Brett's request for the Head of the Department of the Environment. Over the three years Brett discussed CEPA, the NEPC, the US EPA and sustainable development policies with me. He continued to provided documents, organised some funding for the US research, and set up contacts with other people.

Two other key CEPA informers were jointly interviewed on September 22, 1994 (the first visit to CEPA): Barry Carbon, the then Executive Director of CEPA; and John Whitelaw, who had just been given responsibility for implementing the Montreal Protocol. This was also a recorded, open-ended interview that covered topics such as: the comparability of the US EPA to CEPA and the NEPC; the commitment of the Commonwealth, the States and business to sustainable development policies; the relationship between environment protection and sustainable development; the role of public participation in policy making; cooperative versus centralised approaches to environment protection; and the problem of uncooperative States (eg. Western Australia). Both informers also provided useful documents.

Other informers within CEPA included Denise Alexander (librarian) and Ian Fry (liaison officer). During the September 1994 visit, both Denise and Ian helped with access to files and documents and also explained some features of CEPA in informal discussions. Denise was also helpful on a subsequent visits to update data in September 1996.

A visit to the newly established NEPC headquarters in Adelaide on August 20, 1996, led to an open-ended interview with the then Executive Director, John Lambert.

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Issues discussed at this meeting included: the NEPC's strengths and weaknesses; the role of the NEPC in achieving sustainable development; the environmental record of the States; the potential powers of the Commonwealth and its relation to the NEPC.

The US research led to a few contacts with key informants. David Hanrahan, who worked in the World Bank Pollution and Environmental Economics Division, gave an interviewed in Washington DC, July 19, 1995. David offered some insights into the growing significance of environmental factors in development programs, and the problems of getting a US-style EPA to work in differing institutional and developmental contexts. In July 1995 the National Environmental Protection Institute (NEPI), a private policy research body largely funded by industry, was in the process of finalising a major investigation of the US EPA. Joe Schilling, who was working on this study at NEPI, acted as an informer and supplied documents. He explained the problems that the agency was having and proposals for an overhaul of the entire environmental regulatory regime.

The headquarters of the US EPA was also visited many times in July 1995. It was not possible to conduct interviews because of the lack of availability of staff. Several informants did help by finding and providing pertinent documents and information. These informers were: Allison Cook from the US EPA Public Information Centre; Mary Hoffman from INFOTERRA; and Rowena Griem from the US EPA Pollution Prevention Clearinghouse.

US sustainable development policy-making was discussed with Dick Clarke, the former head of Pacific Gas and Electric and a member of the President's Council on Sustainable Development, during a seminar at the University of California (Berkeley) on February 7, 1996. This seminar considered: the Council on Environmental Quality under both Bush and Clinton; the workings and findings of the President's Council on Sustainable Development; the relations between government, business and environmentalists; and the future of sustainable development policy in the USA. The seminar was part of a series hosted by Prof. Christine Rosen of the Haas Business

School. As part of the same seminar series, discussions were held on: industrial ecology with Ernest Lowe from Indigo Development (an environmental consultancy firm), environmental management with Lenore Goldman (an environmental consultant), and green business opportunities with Lynda Grose (formerly with Esprit), on February 21, 28 and April 10, 1996, respectively.

This set of informers represents a cross-section of primary data sources involved with environment protection and sustainable development policy-making. As individuals they are drawn from a variety of institutions in the USA and Australia, including: national regulatory agencies, policy-making bodies, research institutes, environmental consultants, and industry. The information gathered from these informers compliments the textual document analysis and helps establish the context.

Participant/Observer

The third and final form of data gathering is from acting as a participant/observer. Yin suggests that this is where the researcher either works for an organisation in the subject domain, participates in discussion forums, or sits in on meetings and other activities as an observer.[53] Although Spradley acknowledges the participant approach, he suggests that it is better to use informers who are native speakers and have been inculturated into the situation for at least one year because the culture of the outside observer will have some impact on the data.[54] This objection is reasonable but is not fatal to this method of data collection. If the participant/observer technique is used in conjunction with the other two data collection methods discussed and triangulated with alternative sources of data, it can still make a useful contribution to the study.

My professional background has put me in the participant category within industry. I worked as an industrial chemist and technical manager in the Australian manufacturing sector for seven years. During this time I was employed by three

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[53] Yin, pp. 91-92.
[54] Spradley, pp. 13, 25 & 48.

different firms in the consumer chemical, plastics, and food industry. My work covered a range of areas, including: process development, production supervision, technical trouble shooting, occupational health and safety, and quality control. Part of my work involved ensuring compliance with environmental, health and safety laws and dealing with government inspections. This experience has given me some first hand insights into the way industry operates and its response to government regulators. At several points in the thesis I have drawn on this experience.

On two occasions the participant/observer method was employed during the research for this thesis. In the first instance, I sat in as an observer during a meeting that dealt with the environmental problems of the inner city region of Newark July 24, 1995. This meeting attempted to find effective responses to the urban air, land and water quality problems of this city and was attended by representatives from the US EPA, the local council, local business organisations, resident action groups and environmentalists. The meeting was hosted and chaired by NEPI and allowed me to observe how members of these different organisations related to each other when faced with a concrete environmental problem.

The second participant/observer exercise has already been mentioned and occurred in Australia during September-October of 1996. This was where Brett Odgers asked me to prepare a report for the head of the Commonwealth Department of Environment recommending an alternative restructuring of CEPA and its possible role in sustainable development. In writing this report I had to draw on the partially completed research of the US EPA, CEPA and the NEPC. It also put me in the position of having to produce an artefact that was acceptable to the institutional culture of the department.

These forms of participant/observation added to the interpretation of the research data gathered in the textual analyses and interviews. They also helped to shape the proposals for institutional reform that are outlined in chapter eight.

Data Analysis

Having established the method of data collection, it is now necessary to turn to the techniques used for analysis. Three types of analysis have already been alluded to: the discourse analysis of texts, triangulation of materials from various sources; and comparative political analysis. Each of these methods offers a different level of analysis. The first offers a method for understanding how an institution socially constructs its own version of realty. The second allows different constructions of reality to challenge the institutional view and offers the possibility of generating inter-subjective knowledge. The third method enables generalisations to be made regarding the effectiveness of different strategies for institutional action.

In the introduction to their handbook on qualitative methodology, Denzin and Lincoln point out that qualitative analysis often cuts across the modern/post-modern divide.[55] Modernist theories such as liberalism, pluralism, realism, and Marxism encouraged the use of positivist methodologies that assumed researchers could discover universal social principles and test them against an independent, objective reality. This approach was challenged by post-modern thinkers who suggested that reality is socially constructed. That is, the experience of reality is mediated by social institutions and the concept of reality itself is a model constructed, at least in part, by these institutions. Reality is therefore different for different individuals, institutions, and societies. The challenge to positivist and modernist theories has led to both an opening up of the field of social inquiry, but also a crisis of legitimacy in research: if the is no accessible objective reality, are all interpretations equally valid?[56]

According to Denzin and Lincoln four paradigms of interpretation have emerged from this crisis of legitimacy: "positivist & postpositivist, constructive-interpretative, critical (Marxist, emancipatory), and feminist-poststructural". They suggest that the

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[55] Denzin & Lincoln, p. 3.
[56] Denzin & Lincoln, pp. 15-22. Denzin, pp. 314-5.

location of the researcher within social structures will influence which of these paradigms are used.[57]

The choice of analytical paradigm for this thesis was a combination of constructivism, Foucauldian poststructuralism, and critical theory. These three paradigms were designed for the analysis of institutional power and are therefore the most appropriate way of understanding institutions such as national environment protection agencies and sustainable development polices. Denzin and Lincoln suggest that it is legitimate for researchers to make these choices and use combinations of theoretical methods.[58]

Discourse Analysis

Discourse analysis is perhaps the most subtle method of analysis. Denzin points out that data cannot speak for itself, it needs to be interpreted. This means that researchers choose what to write about and how.[59] Further, the texts produced by researchers have to be interpreted by the readers. The type of discourse analysis used in this thesis was derived from several sources of post-structural theory that are commonly used in qualitative research. This method is grounded in the work of Foucault, although many constructivist, post-modern and critical theorists also use this approach.[60] The idea is to analyse texts to identify the hidden discourses that justify and support the power relations and institutional practices at work.[61] In order to do this the researcher needs to be able to find key elements that signal discourses at work. There are no hard and fast rules for finding such flags, but there are certain themes that re-emerge in many studies.

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[57] Denzin & Lincoln, pp. 23-5.
[58] Denzin & Lincoln, pp. 2-6. Denzin, pp. 317-9.
[59] Denzin, pp. 313-22.
[60] Michel Foucault, *The Archaeology of Knowledge,* (Routledge, London, 1995 [1969]), and *The Order of Things: An Archaeology of the Human Sciences*, (Tavistock, London, 1974 [1966]).
[61] Denzin, p. 325.

Atkinson and Coffey point out that different texts are aimed at different readers. The analysis of the text should therefore pick up on flags such as: the use of specialist language; the format of the document; the use of "stock phrases"; and the underlying models that are assumed.[62]

In their analysis of medical case notes, Cheek and Rudge draw on the work of Foucault to identify flags such as: patterns of reporting; different voices adopted by the author (ie adopting an "objective" or disinterested style); and themes that "construct" the patient (ie as helpless or not competent). The underlying discourse assumed that the patient had to be controlled and disciplined in order to be normalised.[63]

Feldman suggests that texts are partial and selective due to the influence of ideology. The key flag should therefore be what is not said, glossed over or skirted around. Such omission are signalled by disruptions in the flow of the text or constructed dichotomies (eg public sphere v. private).[64] The use of ideology is suggestive of a critical theory analysis.

Hodder uses the post-modern work of Derrida in framing his discourse analysis technique. He suggests that it is important to be aware of the purpose of the text as well as the target audience or reader. The historical and political context of both the author and reader is important here because meanings of terms can change over time.[65]

Jagtenberg refers to Baudrillard in his analysis of the way the media and business have coopted the rhetoric of environmentalism to reconstruct nature in a way that

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[62] Atkinson & Coffey, pp. 46, 49 & 54-5.
[63] Julianne Cheek & Trudy Rudge, "Webs of documentation: The discourse of case notes", Australian Journal of Communication, (1994), Vol 21, No 2, pp. 43, 48 & 50-1.
[64] Feldman, pp. 51-2.
[65] Hodder, pp. 111-2, 121-3.

serves their interests.[66] An important point is therefore to consider whose interests are being served by the constructions of reality within a text. These interests may themselves be socially constructed, but they can still be used to identify discourses at work that favour particular groups.

Manning and Cullum-Swan adopt a semiotic discourse analysis in their study of McDonald's menu boards. The focus of this method is to identify the way signs are interpreted by a cultural context. [67]

May suggests that identifying elements that are considered "common sense" are important. His analysis of journalists reports uses a comparative method where different accounts of the same event are compared to uncover differences. The context of the author and analyst are also important.[68]

Meister and Japp offer a useful and pertinent analysis of Agenda 21, a document which is saturated with sustainable development discourses. They use Burke's theory of dramatism to suggest that the political consensus between business, environmentalists and governments that underpins Agenda 21 is due largely to the deliberate ambiguity of the language used. This ambiguity is engineered to allow environmental concerns to be subverted so that they do not interfere with the promulgation of consumerism.[69] Again this raises the issue of whose interests are being served by such discourses.

Prior draws on Foucault to analyse implicit rules that grant legitimacy to some authors rather than others. The key is the underlying system of classification and the

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[66] Tom Jagtenberg, "The end of nature?", *Australian Journal of Communication*, (1994), Vol. 21, No. 3, pp. 15-9.
[67] Manning & Cullum-Swan, p. 260.
[68] May, pp. 138 & 142-8.
[69] Mark Meister & Phyllis Japp, "Sustainable development and the global economy: Rhetorical implications for improving the quality of life." Communication Research, (1998), Vol. 25, No. 4, pp. 404 & 416.

way it is revised in the text. The rules for revision of this system will indicate a discourse at work.[70]

Stratford compares discourses on women, public health, and the environment. She points to flags such as the way subjects are constructed to require management, the way some forms of knowledge are privileged while others ignored or derided, and the rhetoric of credibility.[71]

Clark and Jennings suggest that the boundaries between organisations and nature are constructed by discourse and prone to change. Indications of these changes at work are where the institutional legitimacy is challenged by a cue such as a toxic chemical spill. This creates contradictions, paradoxes and problems that lead to an emotional response from institutional actors. The loss of legitimacy leads to belittling comments on the one hand and self-defensive responses on the other.[72] I would argue that this might be linked to the work of Ernst Haas, who takes a constructivist view that institutions enter a period of learning when they begin to question fundamental principles such as their own legitimacy.[73] More will be made of this point in chapter two.

Rutherford points out that in texts focused on the environment, the way ecology is constructed and used as a model is often a telling indicator of discourses at work. These discourses usually entail a preference for scientific management practices.[74] Terms such as efficiency, rationality, scientific, economic and system may be flags of this discourse.

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[70] Lindsay Prior, "Following in Foucault's Footsteps: Text and Context in Qualitative Research", in David Silverman (ed.) Qualitative Research: Theory, Method and Practice, (Sage, London, 1997), pp. 64-5 & 70.
[71] Elaine Stratford, "Disciplining the feminine, the home, and nature in three Australian public health histories", *Australian Journal of Communication*, (1994) Vol. 21, No. 3, pp. 57 & 62-5.
[72] Vivien Clark & P. Devereaux Jennings, "Talking about the natural environment: A means for deinstitutionalisation?", American Behavioural Scientist, (1997), Vol. 40, No. 4, pp. 454-60.
[73] Ernst Haas, *When Knowledge is Power: Three Models of Change in International Organizations,* (University of California Press, Berkeley, 1990), pp.23-4.
[74] Paul Rutherford, "The administration of life: Ecological discourse as 'intellectual machinery of government'", Australian Journal of Communication, (1994), Vol. 23, No. 3, pp. 40-1.

This sample of research using methods of discourse analysis is not meant to be exhaustive. It is simply a cross-section of work that has applied this method to the analysis of institutions and the environment. Although each approach is unique, there are some common themes. They all identify various technical, economic, political, social, or ecological discourses at work through the flags or markers that such discourses place in the text. Such flags may include: the appearance of specialist language; the way the subject is constructed; claims to objectivity; comments relating to the need for discipline or normalisation; the historical/political context of author and reader; the cooptation of opponent's rhetoric; how readers are expected to interpret signs and symbols; the assumed common sense of author and reader; deliberately ambiguous language; manufactured consensus; calls for better management; the questioning of institutional legitimacy; the privileging of one form of knowledge over others; and the assumed underlying models.

Once these flags are identified, it is then possible to uncover the discourses that justify and reinforce the power relations and practices at work within an institution. At various stages throughout this thesis, these sorts of flags were found in the texts and the underlying discourses exposed. A key goal will be to identify whose interests are being served by the operation of these discourses. One method of achieving this is to compare different accounts of the same subject, particularly those from different institutional contexts. This is where the method of triangulation becomes important.

Triangulation

One of the limitations of discourse analysis is that while it can show how an institution constructs a perceptual model of reality and how this construction is guided by prevailing power relations, it does not give a reliable account of reality itself. This criticism rests on the assumption that an objective external reality exists independently from the institutional perception and that constructed models can vary

in the accuracy of their representation of this reality. Triangulation is a technique that can be used to test the reliability of the constructed model.

Yin gives the simplest explanation of triangulation when trying to establish whether an event really occurred. In introducing the concept, he uses the geometric analogy of locating a point in space by specifying the three intersecting vectors.

> You would be more confident in saying that the event actually had occurred if your study showed that information from interviews, documents, and your own observations all pointed in the same direction. With such converging evidence, you might even feel very confident about your conclusion that the event had occurred. This type of triangulation is the most desired pattern for dealing with case study data, and you should always seek to attain such an outcome.[75]

Jick develops an account of triangulation methods that draws on the earlier work of Denzin. He argues that triangulation can be deployed on two levels: "within-method" and "between-method".[76] Within-method triangulation is the sort of approach outlined by Yin. It essentially seeks to compare different sources of data and to identify common ground that can be used as the foundation of a more reliable analysis. Between-method triangulation uses different methods to analyse the same data and compare the results. This allows the researcher to check if an outcome is due to the idiosyncrasies of a particular method, rather than being supported by the data.[77] It is assumed that the weaknesses of one method can be revealed by comparison to another.[78] If there is convergence both within-method and between-method, the outcome could be considered very reliable. Divergence between results, however, can offer a starting point for further analysis by indicating significant differences in the context in which the data is produced.[79] This would be an excellent opportunity to use discourse analysis to explore the context of power relations in which the subject is enmeshed.

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[75] Robert Yin, *Applications of Case Study Research*, (Sage, London, 1993), p. 69.
[76] Todd Jick, "Mixing Qualitative and Quantitative Methods: Triangulation in Action", *Administrative Science Quarterly*, (December 1979) Vol. 24, No. 4, pp. 602-3.
[77] Jick, p. 602.
[78] Jick, p. 604.

Jick suggest that there are several advantages in using the triangulation technique. First, it can identify deviant results that might otherwise have remained hidden. Second, it can "lead to a synthesis or integration of theories". Third it allows for a richer description and analysis of the subject.[80] These advantages are particularly useful to both the multi-theory and multi-method approach taken in this project. Jick even mentions that triangulation techniques are probably "embedded in many doctoral theses".[81]

There is a caution made by Denzin and Lincoln about the use of this method.

> Objective reality can never be captured. Triangulation is not a tool or a strategy of validation, but an alternative to validation ... The combination of multiple methods, empirical materials, perspectives and observers in a single study is best understood, then, as a strategy that adds rigour, breadth, and depth to any investigation ...[82]

That is, triangulation will help establish inter-subjective knowledge but not objective knowledge. The best we can hope for is to build a model of reality that accommodates data from a variety of sources and methods. Constructivism would suggest that this generates some criteria for confidence in the analysis.

> A good constructionist [constructivist] interpretation (text) is based on purposive (theoretical) sampling, a grounded theory, inductive analysis, and idiographic (contextual) interpretations. The foundation for interpretation rests on triangulated empirical materials that are trustworthy. Trustworthiness consists of four components: credibility, transferability, dependability, and confirmability ...[83]

These claims are highly contested. Positivists still assume that objective knowledge is possible, post-modernists claim that all knowledge is a social construction. The

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[79] Jick, pp. 607-8.
[80] Jick, p. 609.
[81] Jick, p. 605.
[82] Denzin & Lincoln, p. 4.
[83] Denzin, p. 330.

constructivist approach is perhaps a compromise between these two extremes that encourages the use of comparative analysis.[84]

The method of triangulation used in this thesis is on three levels. First, the three types of data sources are compared. This allows data from texts, informants and participant/observer exercises to be contrasted and combined. Second, data is taken from three main institutional sources: government organisations; environmental actors (eg business and environmentalists); and other "independent" sources (eg academia, the OECD, the UN). Third, three different methods for analysing the effectiveness of the US EPA are compared in chapter five and used to synthesise a new hybrid trans-structural method.

Comparative Analysis

Comparative techniques are well established in the sub-discipline of comparative politics. As Denzin points out the notion of trustworthiness of empirical data employed by constructivists requires the use of comparative techniques to be applied to different data sources.[85] On a larger scale, however, the comparison of policies and actions by different states enables researchers to identify and test general principles of government.[86] Such principles may not be absolute universal truths, but they are more trustworthy for having been found to apply in different institutional situations. Vogel and Kun claim that trans-national comparisons are particularly useful for studying environmental policies because the problems have been similar in many countries and the rise of concern has happened almost simultaneously in many countries.[87]

Knoepfel, et. al., point out that: "Comparative political inquiry can elucidate the connections between long-standing political structures, specific policies and the

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[84] Denzin, pp. 318 & 331.
[85] Denzin, p. 331.
[86] Knoepfal, et. al., p. 180.
[87] Vogel & Kun, p. 100.

involved actors better than do normal policy analyses."[88] This is because policies are analysed in a range of economic, social, political, and cultural environments.[89] A comparison therefore has the potential to draw out some of the effect of different institutional contexts on political actors.

Vogel and Kun's survey of comparative environmental policy studies found a number of common features in researchers' approach to their work. They tended to: use two case studies to keep the workload manageable; prefer qualitative analysis; often included the USA due to the ease of collecting data; and tried to identify and explain key similarities and differences. They noted that many studies were often descriptive and focused on institutional contexts.[90] Data collection often utilised documents, secondary sources, interviews and field work.[91]

As has already been stated, the USA is a significant subject for case study, that is comparable to Australia, but with enough significant differences to make the research worthwhile. The methods of data collection and analysis used in this thesis are in tune with the common comparative analysis approach adopted by other researchers.

4) Research Strategy

The final point to be made is how the research question, data collection and analytical methods all fit together. Denzin and Lincoln discuss the need for a coherent research design.

> A research design describes a flexible set of guidelines that connects theoretical paradigms to strategies of inquiry and methods for collecting empirical material. A research design situates researchers in the empirical world and connects them to specific sites, persons, groups, institutions, and bodies of relevant interpretative material including documents and archives. A research

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[88] Knoepfal, et. al., p. 179.
[89] Knoepfal, et. al., pp. 184-5.
[90] Vogel & Kun, pp. 102-3, 131-2, 141.
[91] Vogel & Kun. pp. 143-9.

design also specifies how the investigator will address the two crucial issues of representation and legitimation.[92]

Chapter two will develop the research design in more detail, once the theoretical framework has been established. Claims are not made to absolute or universal truth in this project. Instead there is an attempt to create some inter-subjective, trans-national knowledge that may help the USA, Australia, and many other states address some industrial environmental problems. In accordance with the suggestions of Denzin and Lincoln, the researcher has been located as sympathetic to a hybrid of the Foucauldian, constructivist, critical theory schools.[93] This theoretical view was developed in parallel with the empirical research. On the one hand, the developing theory influenced the choice of subject, data, and method of analysis. On the other hand, the data modified the theory by challenging some assumptions and reinforcing others. The fit between the theory, method and data is therefore the product of this process.

Conclusion

This chapter has made four main points. First, trying to find out how effective national government environment protection institutions can be in making industry sustainable is a question worth asking because environmental problems are serious and ubiquitous. Second, a comparative case study approach using the USA and Australia is appropriate because the research task is manageable, the cases are comparable, and the findings will have important implications. Third, the most useful sources of data are: documents and speeches, interviews, and participant/observer activities. Finally, the most appropriate analytical methods are discourse analysis, triangulation and comparative techniques. All of this now needs to be located within a broader theoretical framework.

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[92] Denzin & Lincoln, p. 28.
[93] Denzin & Lincoln, pp. 23-4.

Chapter 2

The Theoretical Looking Glass

Introduction

Chapter one outlined the research question to be addressed by this thesis and assessed the most appropriate methods of analysis. This chapter is an attempt to locate these methods within a broader theoretical framework. The objective is to develop a research strategy that will make the best use of the data. The first section explores the link between theory and method and offers a justification for the chain of research decisions. Section two briefly recounts the similarities and differences between constructivism, Foucault and critical theory that make them pertinent to this study. In section three the various branches of US institutionalism are used to introduce the version of constructivism offered by Ernst Haas. Section four explores the strengths and weaknesses of Foucault's organisational theory. Section five surveys a range of critical theory case studies of state institutions and environmental intervention. Finally, section six develops a hybrid "trans-structural" research strategy for assessing the data. It will be concluded that this study may have some implications for the nature of power, business-government relations, and the role of the state in society.

1) Theory & Method

A research strategy needs to be located within a broader theoretical framework that is consistent with the analytical techniques used. The methods outlined in chapter one were selected because they were the most appropriate for the available primary data. The nature of the data was largely determined by the institutions selected for study. These institutions, in turn, were chosen because they offered a significant and manageable project that suitably addressed the research question.

This line of reasoning suggests that the progressive narrowing of methodological and theoretical choices has followed a logical sequence that begins with the selection of a research question. In this case, attempting to discover how a national government environment protection organisation can make industry sustainable immediately sidelines some theoretical schools. Libertarians, economic rationalists and anarchists, for example, would be unlikely to frame the question in this way because they tend to play down the positive contribution of state institutions.[1] Feminist theorists are unlikely to ask such a question because it does not explicitly incorporate gender issues or an analysis of patriarchy as a fundamental part of the project.[2]

The methods chosen to answer this question have to fit within the constraints imposed by data availability, time, money, and the work capacity of a single researcher. This meant that the most appropriate strategy was to analyse a few key organisations and policies in two comparable but significantly different political contexts (ie. CEPA, the NEPC, the US EPA and sustainable development policies). The ready availability of documentary sources, the scarcity of informants, and the nature of the research question rendered the sociological ethnographic techniques inappropriate.[3] The data was, however, ripe for discourse analysis and triangulation. Methods such as these are not easily accommodated by pluralism, but they are commonly used in Foucauldian organisational theory, constructivism (particularly the kind closely related to social institutionalism), and some versions of critical theory.[4] These three schools are also appropriate because

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[1] See for example: Thomas DiLorenzo, "The Mirage of Sustainable Development", *The Futurist*, (September-October, 1993), p. 14. Richard North, *Life on a Modern Planet: A Manifesto for Progress*, (Manchester University Press, Manchester, 1995), pp. 5-10, 276-278. Murray Bookchin, *Which Way for the Ecology Movement?* (AK Press, Scotland, 1994), pp. 21-3. William Morris, *News from Nowhere*, (Routledge & Kegan Paul, London, 1970 [1890]), pp. 62-6.

[2] The range of approaches to environmental issues within the feminist school is outlined in Carolyn Merchant, *Radical Ecology: The search for a Liveable World*, (Routledge, New York, 1992), pp. 183-209. See also: Val Plumwood, "Ecofeminism: An Overview and Discussions of Positions and Arguments", *Australasian Journal of Philosophy*, (June 1986), Supplement, Vol. 64, pp.120 & 137.

[3] See the discussion in chapter one regarding James Spradley, *The Ethnographic Interview*, (Holt, Rinehart & Winston, New York, 1979), pp. 48-60, 178-186.

[4] For the original pluralist approach see R. Dahl. & C. Lindblom, "Polyarchy" in H. S. Kariel (ed), *Frontiers of Democratic Theory*, (Random House, New York, 1970). Lindblom spent much of his early career conducting pluralist analyses. He later rejected pluralism and criticised its inability to deal with the effects of pro-business attitudes and beliefs. Charles Lindbom, *Politics and Markets,*

their primary subject of analysis is often the power of state institutions and their relation to business.

This is not to say that the general research area is the exclusive domain of these three schools of thought. Clearly there have been many anarchist, libertarian, feminist and pluralist analyses of state environmental intervention (a sample of them have even been footnoted to indicate the breadth of the field). From a pragmatic point of view, however, it would not be possible to incorporate all these theories into a single thesis. The initial literature review alone would take up more than the accepted dissertation length. What is being argued is that for this particular project, these three schools are the most appropriate because of the methods they entail, the nature of the primary data, and the way the research question has been posed.

2) Approaching Institutions as Case Studies

The approaches of Foucault, the constructivists, and many critical theorists share four features that make them ideal for this project. First, they are assume that institutions play a major role in shaping politics and political action. Second, they undertake case studies that focus on specific (often state) institutions and organisations. Third, one of their main goals is to understanding how institutions and organisations affect the consciousness of political actors through world views, ideology, discourses or corporate cultures.[5] Finally, as has already been noted, their theoretical frameworks all accommodate and encourage the use of techniques such as discourse analysis, triangulation, and comparative analysis.

These theories also predict some possible targets for analysis. If world views, ideology, discourses or corporate cultures are at work, there should be some evidence of them having an impact on the effectiveness of government

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(Basic Books, New York, 1977), pp. 171-2 & 203-7. Norman Denzin, "The Art and Politics of Interpretation", in Norman Denzin & Yvonna Lincoln (eds.) *Collecting and Interpreting Qualitative Materials*, (Sage, London, 1998), pp. 330-31. Lindsay Prior, "Following in Foucault's Footsteps: Text and Context in Qualitative Research", in David Silverman (ed.) *Qualitative Research: Theory, Method and Practice*, (Sage, London, 1997), pp. 64-7.
[5] These terms are defined in the introduction to this thesis.

organisations and policies. If, for example, both anti-regulation and pro-environment discourses are at work, we would expect to find some evidence of the clash of such discourses within the organisations being studied. Further, there should be some situations where anti-regulation discourses hold up state action and instances where pro-environment discourses aid intervention. If there is a dominant ideology at work, we would expect to find the material interests of the capital owning class being systematically favoured by government policies, even those that had been produced from widely consultative processes. If there are different world views, these should become apparent and converge during policy consultations. If there are corporate cultures, there may be occasions where an organisation neglects useful knowledge or has trouble assimilating new employees who hold contrary beliefs.

There are some significant differences between critical theory, Foucault and constructivism that will enable this study to explore some major political debates. They predict different degrees of individual freedom that allows agents to challenge their institutional constraints. They vary in the degree to which they treat power as an instrument or a relation. They vary in their interpretation of political consequences of consensus decisions. They differ in their assumptions about the purpose and power of state institutions in a globalised market-based economy.

Many of these differences derive from the pedigree of the schools of thought. Critical theory emerged from the Frankfurt School's incorporation of aspects of sociology and psychology into Marxist theory.[6] It has since grown to incorporate many left-leaning reflective social theories, including the work of Habermas and Dryzek. Foucault's organisational theories emerged from a continental Marxist vein but developed as a reaction against structuralism.[7] It is difficult to set hard and fast categories for these two strands of thought because there is considerable overlap in their approach. Foucault, for example, has been categorised at different

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[6] Michael Payne, (ed.), *A Dictionary of Cultural and Critical Theory,* (Blackwell, Oxford, 1996), pp. 118-9.
[7] Payne, pp. 202-3, 436-7.

times as a structuralist, post-structuralist and post-modernist.[8] Tallack takes such a broad definition of critical theory that it encompasses Foucault and Habermas, as well as psychoanalysis, structuralism, post-structuralism, neo-Marxism, and feminism.[9] In order to avoid becoming bogged down in taxonomy, key theorists have been selected to represent a cross-section of critical thought that is applicable to the research question.

Constructivism has become a label for a set of theories applied to such diverse fields as education, psychology, science, philosophy, sociology, feminism and international relations.[10] The version of constructivism used in this thesis allows the analysis to be developed on both the local and international scale. It developed from British liberalism, behaviourism, and US institutionalism.[11] This provides an interesting contrast to the continental, Marxist pedigree of Foucault and the critical theorists. A comparison of their usefulness in explaining the research data should therefore have some interesting implications for political theory.

3) From Institutions to Constructivism

A great deal of recent research into the effect of state institutions has been undertaken by the institutionalist school that is linked to the version of constructivism used in this thesis. This school appears to be popular with American scholars who are dissatisfied with earlier pluralist studies, shy away from the harsh critiques of Marxism, and want to avoid the relativist quagmire of post-modernism. The key premise of this school of thought is that institutions can be treated as actors that influence political outcomes. Institutionalism can be

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[8] Payne, pp. 202-3, 436-7 & 513.

[9] Douglas Tallack, (ed.), *Critical Theory: A Reader*, (Harvester-Wheatsheaf, New York, 1995).

[10] Gerard Delany, *Social Science: Beyond Constructivism and Realism*, (Open University Press, Buckinham, 1997), pp. 113-129. Ernst von Glasersfeld, "Aspects of Constructivism", in Catherine Fosnot (ed.), *Constructivism: Theory, Perspectives and Practice*, (Teachers College Press, New York, 1996), pp. 3-7. Catherine Fosnot, "Constructivism: A Psychological Theory of Learning", in Catherine Fosnot (ed.), *Constructivism: Theory, Perspectives and Practice*, (Teachers College Press, New York, 1996), pp. 8-30. Ernst Haas, *When Knowledge is Power: Three Models of Change in International Organisations*, (University of California Press, Berkeley, 1990), pp. 8-9 & 21.

[11] DiMaggio, Paul J., and Walter Powell (eds), *The New Institutionalism in Organisational Analysis*, (University of Chicago Press, Chicago, 1991), p. 13. Documents provided by Ernst Haas,

divided into four main groups: functional, political, historical and sociological. DiMaggio and Powell offer a concise summary of institutionalism (but construct different categories).[12]

Functionalists like Noll believe that effective institutions are the inevitable outcome of economic forces.[13] This approach is highly deterministic because it assumes that institutions only arise when there is a functional need for them. Further, only the most efficient institutional arrangement will survive. Functionalists tend to be critical of environmental intervention by the state because they believe that it prevents the economy attaining maximum efficiency. Noll suggests that the US EPA's attempts to control water pollution were "inefficient".[14] Stigler uses an economic rationalist analysis to complain about the high transaction cost of political decision making and claims that state intervention distributes costs and benefits according to the power of competing organisations.[15] Wolf argues that the approach adopted by economists for assessing market failures may be extended to the state in estimating failures in areas such as environment protection.[16]

The functionalist approach has been the target for substantial criticism by historical and political institutionalists. Political institutionalists, like Piore and Sabel, suggest that institutions are the product of reversible political settlements where alternative arrangements remain viable options. Prevailing institutions only influence the way politics is conducted until other options are selected by the ongoing political negotiations.[17] Historical institutionalists, such as Zysman and Berger, argue that institutions arise from certain critical junctures in history that set the development of countries on specific trajectories. Once adopted the

"Historical Derivation of Contemporary Schools of Thought in I. R. Theory", (UC Berkeley, January 18, 1996).

[12] DiMaggio & Powell, pp. 1-38.

[13] R. G. Noll, "Economic Perspectives on the Politics of Regulation", in Schmalensee, R. and Willig, R. D. (eds), *Handbook of Industrial Organisation, Volume II*, (Elsevier Science Publishers, Netherlands, 1989), pp. 1258-62.

[14] Noll, p. 1273.

[15] George Stigler, "The theory of economic regulation", *Bell Journal of Economics and Management Science*, (Spring 1971), Vol. 2, No. 1, pp. 10-12.

[16] Charles Wolf, "A theory of non-market failures", *Public Interest*, (Spring 1979), Vol. 55, p. 118.

institutional arrangements are not likely to substantially change unless another crisis occurs.[18]

These forms of institutionalism have produced many case studies that demonstrate how a range of different institutions can be created in response to similar economic forces. This suggests that, contrary to functionalist assumptions, there is no single most efficient arrangement that will necessarily emerge. Further, they turn the functionalist argument on its head by demonstrating how the political or historical selection of institutional arrangements affects what is considered to be economically rational. Zysman points out that the varying historical developments in different countries has led to unique institutional arrangements. These national arrangements are deeply entrenched and alter state responses to economic forces.[19] Berger has traced the differing political development of two regions of France under the same economic circumstances in the post-war period. One region, Finistere, established syndical, locally oriented institutions, while the other, Cotes du-Nord, developed a party, state oriented approach. Her conclusion was that the selection of these structures was not determined by efficiency, and economic forces could not explain the differences.[20]

One of the major problems for functionalists and economic rationalists is that they rely on a rational choice theory of objective self-interest that has difficulty explaining collective action. If political actors (be they individuals, pressure groups, institutions or nation-states) are motivated only by an objective rational self-interest, there is always an incentive for an actor to gain more by breaking an agreement. This is often referred to as the prisoners' dilemma.[21] Such an approach may explain why collective agreements sometimes break down, but it does not explain why they are often kept. As Hardin points out, it also doesn't explain why

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[17] M. Piore & C. Sabel, , *The Second Industrial Divide: Possibilities for Prosperity*, (Basic Books, New York, 1984), p. 6.
[18] John Zysman, "How Institutions Create Historically Rooted Trajectories of Growth", *Industrial and Corporate Change*, (1994), vol 3, no. 1, pp. 244-5.
[19] John Zysman, *National Roots of a "Global" Economy*, (University of California at Berkeley, August 1994), pp. 8-11.
[20] Suzanne Berger, *Peasants Against Politics*, (Harvard University Press, Massachusetts, 1972), pp. 146-152.
[21] For a full explanation of the prisoners' dilemma see Chris Brown, *Understanding International Relations*, (Macmillan, London, 1997), pp. 58-60.

some actors bother to pursue issues such as environment protection when they have no immediate personal interest.[22] If interests are constructed by institutional arrangements, the rational choice basis of functionalism becomes difficult to maintain. This point is conceded by Soskice in his study of the institutional arrangements in post-war West Germany that constructed an economic interest for firms to undertake high levels of expensive in-house training for their employees.[23]

While functional institutionalism faces these significant problems, historical and political instituionalism share some of its methodological shortcomings. In particular, the analyses employed by these three versions of institutionalism show a remarkable similarity to older pluralist methods. Dahl and Lindblom developed the pluralist theory in which pressure groups competed for the favours of a government acting as an neutral arbiter as a response to Marxist critiques of liberal democracy. Their studies identified active pressure groups engaged in visibly contested issues, noted their demands, and scored the demands fulfilled as wins.[24] Critical studies by Crenson, Lukes and Lindblom (in his post-pluralist phase) pointed out that this method neglected the hidden dimensions of political power, such as agenda setting and ideology, that favoured entrenched elites.[25]

The institutionalists sought to overcome the crisis of confidence in pluralism by analysing the historical, political, social and economic institutional arrangements that led to the creation of interests and pressure groups.[26] Although they changed their focus from groups to institutions, the functional, historical and political institutionalists did not substantially alter the pluralist's method. The competitive struggle of pressure groups was replaced by the competitive struggle of institutions. In each case study the outcome of a contested issue is compared to the demands of various economic, political or social institutions. The main difference

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[22] Russell Hardin, *Collective Action*, (John Hopkins University Press, Baltimore, 1982), pp. 11.
[23] David Soskice, *Reconciling Markets and Institutions: The German Apprenticeship System*, (Institute of Economic Statistics, Oxford University, July 1992), p. 31.
[24] Dahl & Lindblom, p.58.
[25] Stephen Lukes, *Power: A Radical View*, (Macmillan, London, 1974), p. 25. Crenson, Matthew, *The Un-Politics of Air Pollution*, (John Hopkins Press, Baltimore, 1971). Lindblom, pp. 171-2.

is that whereas pluralism treats the state as a neutral arbiter between pressure groups, institutionalism treats the state as another competing institution. The role of arbiter is instead fulfilled by the global market, with national institutions mediating the interactions of each nation with this market.[27]

There are two consequences for these types of institutionalism. First, contradictory results can be generated in the analysis of the same institution if different studies focus on different wins and losses. Several studies, for example, have attempted to delineate the effect of state intervention on Japan's post-war industrial development, particularly the role of the Ministry of International Trade and Industry (MITI). Shimada argues that organisations like MITI have an effect, but often increased the cost of living by promoting oligopolies that favoured larger established firms and entrenching low productivity in the heavily protected sectors.[28] Noble, on the other hand, suggests that MITI was largely ineffective because it failed to get cooperation between steel mini-mill producers, failed to establish a common video format, and failed to back the emerging video disc technology.[29] Tyson and Zysman, argue that MITI has been both effective and positive for Japan's technical development.[30] Pempel gives MITI a mixed review, listing some losses in the area of telecommunications, some inaction on reforming heavy industry, and some success with controlling the development of integrated circuits.[31] This comparison suggests that the analysis is flawed by a somewhat arbitrary selection of issues.

A second problem with pluralist-like methodology is that it neglects the impact of factors that critical theorists have identified as significant, such as: ideology,

[26] Suzanne Berger, *Organising Interests*, (Cambridge University Press, Cambridge, 1981), pp. 11-20.

[27] See for example, Laura Tyson & Peter Kenen, "The International Transmission of Disturbances: A Framework for Comparative Analysis", in Tyson & Kenen (eds.), *The Impact of International Disturbances on the Soviet Union and Eastern Europe*, (Permagon Press, USA, 1980), pp. 33-57.

[28] Haruo Shimada, "Structural politics in Japan", in Kernell (ed.) *Parallel Politics*, (Brookings Institute, USA, 1991), pp. 285-91 & 301.

[29] Gregory Noble, "The Japanese Industrial Policy Debate", in Stephen Haggard, et. al., (eds.), *Pacific Dynamics*, (Westview Press, Boulder, 1989) pp. 92-3.

[30] Laura Tyson & John Zysman, "Developmental Strategy and Production Innovation in Japan", in C. Johnson, L. Tyson, & J. Zysman (eds), Politics and Productivity, (Ballinger, USA, 1989), p. 116.

discourse, world view or corporate culture. Social institutionalists avoid this problem by broadening the definition of an institution to include patterns of behaviour and social norms, rather than just organisations. They see institutions as socially constructed and able to both shape, and be shaped by world-views, ideology or discourse.[32] Garrett and Weingast argue that the creation of the European common market cannot be understood purely in terms of the efficiency approach of functionalism or economic rationalism. It requires an understanding of the norms and ideas constructed by institutions that convinced the states involved to choose to cooperate in this particular manner.[33] Putnam argues that barriers to collective action (like the prisoners' dilemma) are overcome when institutions promote behavioural norms of trust, reciprocity and civic engagement. He refers to these norms as a kind of "social capital" that helps even apparently competitive markets function because they encourage actors to honour contracts and deals.[34] Hall's analysis of unions in Europe suggests that ideology is key factor in generating worker solidarity.[35]

Ernst Haas has developed a constructivist method which is closely related to social instituionalism and concordant with both critical theory and Foucault's organisational analysis.[36] He suggests that knowledge emerges as a consensus of accepted expert opinion. Further, both interests and knowledge are socially constructed, at least in part, by ideals and values.[37] While he rejects the deterministic version of hard line structuralism, he does acknowledge that structures impose some limits on an individual's ability to exercise power.[38] He argues that institutions are created to solve problems, but ideals and values influence what is recognised and constructed as a problem. Decision makers are

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[31] T. J. Pempel, "The Unbundling of "Japan, Inc.": The Changing Dynamics of Japanese Policy Formation", *Journal of Japanese Studies,* (1987), Vol. 13, No. 2, pp. 273 & 288.
[32] DiMaggio & Powell, pp. 11-5.
[33] Geoffrey Garrett & Barry Weingast, *Ideas, Interests and Institutions: Constructing the EC's Internal Market,* (Paper presented to the NBER Conference on Political Economics, November 15-6, 1991), pp. 2-4.
[34] Robert Putnam, *Making Democracy Work: Civic Traditions in Modern Italy,* (Princetown University Press, 1993), pp. 163-85.
[35] P. A. Hall, "European Labour in the 1980s", *International Journal of Political Economy,* (1987), fall, p.21
[36] Haas, pp. 6-15.
[37] Haas, pp. 2 & 21.
[38] Haas, p. 8.

aware of the fallibility of knowledge and therefore review how problems are conceptualised by drawing on an epistemic community of people considered to be experts.[39] When this reconsideration leads to a questioning of foundation values and goals, institutional learning takes place.[40] The stimulus for learning comes from outside the institution, usually from some sort of external crisis.[41] Haas includes environment protection institutions in his analysis and this, combined with the capacity to extend the analysis into the international context, makes it particularly useful for this study.[42] Weiss, Forsythe and Coate demonstrate how such an analysis can explain sustainable development discourses.[43]

In summary, the American institutionalists have produced a broad range of studies on the effect of state institutions. The functional, political and historical sub-schools have produced some interesting data, but they suffer from an inability to deal with the hidden aspects of power owing to their pluralist-like methods. Further, the deterministic tendencies of functionalism have been seriously challenged by political and historical case studies. Social institutionalism and the closely related version of constructivism are more promising because they make some provision for the impact and analysis of discourse.

4) Foucault, State Institutions & Knowledge

Another school of thought that has used state institutions as the main point of analysis has been the organisational theories that developed from the work of Michel Foucault. Foucault's work is both subtle and complex, so it will require a substantial diversion to explain his ideas before they can be applied to state environmental institutions.

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[39] Haas, pp. 9, 41 &45.
[40] Haas, pp. 23-24.
[41] Haas, pp. 27-28.
[42] Haas, pp. 71-2, 74, 80, 123, 130, 140-2, 161-4, 170, & 200-2.
[43] Thomas Weiss, David Forsythe & Roger Coate, *The United Nations and Changing World Politics*, (Westview Press, San Francisco, 1994), pp. 222-5.

of observation is a key feature of the way discourses can operate because individuals modify their behaviour if they think they are visible.[51] In his earlier work Foucault was particularly concerned with the negative power of discourses that promote domination.[52] In his later work he began to explore the positive aspects that produce pleasure, knowledge and constructions of reality.[53]

The deployment of power and discourses generate resistance at the point where they are applied.[54] The appearance of resistance is therefore a flag for power at work, even if the mechanisms are hidden. As was discussed in chapter one, such flags are useful in identifying and analysing discourses that underpin texts.[55] Techniques in discourse analysis were developed by Foucault in his early work.[56]

Foucault also developed an historical analysis of the state and its institutions. He argued that from the sixteenth century onwards citizens in European countries became the subject of study by the state which adopted statistical methods to analyse the data produced. In their attempts to impose order, state technocrats assumed that the populace would be easier to rule if all citizens exhibited behaviour that was close to the statistical "norm" or average. This led to a discourse that deviant behaviour needed to be normalised. Three techniques of power were devised: (1) dividing practices that isolated deviants in institutions such as prisons or mental hospitals; (2) classification of 'the natural order' was defined and promulgated in state institutions such as schools and the military, and; (3) normalisation technologies where citizens accepted the legitimacy of state assessment and correction.[57]

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[51] Foucault, *Discipline and Punish*, pp. 202-3.
[52] Foucault, *Discipline and Punish*, pp. 26-7 & 80.
[53] Foucault, *Discipline and Punish*, pp. 27-9. H. Dreyfus & P. Rabinow, *Michel Foucault: Beyond Structuralism and Hermeneutics*, (University of Chicago Press, 1983), p. 203. Michel Foucault, in P. Rabinow (ed), *The Foucault Reader*, (Pantheon Books, New York, 1984), p. 61.
[54] Foucault, *The History of Sexuality Volume 1: An Introduction*, p. 95.
[55] See, for example, Lindsay Prior, "Following in Foucault's Footsteps: Text and Context in Qualitative Research", in David Silverman (ed.) *Qualitative Research: Theory, Method and Practice*, (Sage, London, 1997), pp. 64-7.
[56] Michel Foucault, *The Archaeology of Knowledge*, (Routledge, London, 1995 [1969]). Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, (Tavistock, London, 1974 [1966]).

Foucault mentions several specific powers of state institutions: the power to judge; the power to restrain, the power to punish, the power to determine good and bad, and the power to enforce laws.[58] These powers are founded on the 'bio-power' of subjectification in which individuals come to understand themselves, perceive their society, and define 'truth' through the discourses of state authorities.[59] This discourse is socialised into citizens through the 'mode of subjection' in state institutions such as schools, hospitals and the military.[60]

Foucault's model of a dynamic web of force relations/discourses provides a possible explanation of how institutions such as CEPA, the NEPC and the US EPA might arise, grow, or decline. His theory of the state may say something about the purpose of such institutions: to discipline and normalise the use of nature by business. Finally, the analysis of discourses offers a useful way of approaching environmental documents, routines and policies. Rutherford, for example, finds evidence that current attitudes towards environmental problems are examples of an ecological discourse at work that assumes scientific management of the environment is the solution. Although Foucault did not apply his ideas directly to environmental issues, Rutherford argues that such a discourse is a version of the 'population-riches problem' that Foucault identified in nineteenth century thinking.[61] Meister and Japp found that the discourses underpinning the model of sustainable development in Agenda 21 supported the dominant position of US business by defining the environment as a resource and promoting consumerism.[62] Stratford draws comparisons between discourses that support a "disciplining" and managerial approach to both nature and women.[63]

[57] Foucault, *Discipline and Punish*, pp. 220-1. Foucault, *The History of Sexuality Volume 1: An Introduction*, p. 86. Foucault in Rabinow, pp. 8-22.

[58] Foucault, *Discipline and Punish*, pp. 22 & 80. Foucault, *The History of Sexuality Volume 2: The Use of Pleasure*, pp. 25 & 82.

[59] Michel Foucault, *Power/Knowledge*, C. Gordon (ed), (Pantheon Books, New York, 1980), pp. 131-2. Foucault in Rabinow, p. 11.

[60] Foucault, *Discipline and Punish*, p. 138. Foucault, *The History of Sexuality Volume 2: The Use of Pleasure*, p. 27.

[61] Paul Rutherford, "The administration of life: Ecological discourse as 'intellectual machinery of government'", *Australian Journal of Communication*, (1994), Vol. 23, No. 3, p. 44.

[62] Mark Meister & Phyllis Japp, "Sustainable development and the global economy: Rhetorical implications for improving the quality of life. *Communication Research*, (1998), Vol. 25, No. 4, pp. 417-8.

[63] Elaine Stratford, "Disciplining the feminine, the home, and nature in three Australian public health histories", *Australian Journal of Communication*, (1994) Vol. 21, No. 3, p. 58.

A related theory of Foucault's that is particularly relevant to an analysis of state institutions, is his concept of governmentality. Unfortunately Foucault wrote very little about this idea and many theorists have adapted it to their own ends. Foucault defined governmentality as follows:

> 1. The ensemble formed by the institutions, procedures, analyses and reflections, the calculations and tactics that allow the exercise of this very specific albeit complex form of power, which has as its target population, as its principal form of knowledge political economy, and as its essential technical means apparatuses of security.
> 2. The tendency which, over a long period and throughout the West, has steadily led towards the pre-eminence over all other forms (sovereignty, discipline, etc.) of this type of power which may be termed government, resulting, on the one hand, in the formation of a whole series of specific governmental apparatuses, and, on the other, in the development of a whole complex of *savoirs*.
> 3. The process, or rather the result of the process, through which the state of justice of the Middle Ages, transformed into the administration state during the fifteenth and sixteenth centuries, gradually becomes 'governmentalized'.[64]

Governmentality can be understood as the mentality of both the governed and the governing that rationalises and legitimates the sovereignty of the state. It is a kind of discourse which gets subjects to accept the legitimacy of the existence and actions of state institutions, and guides these institutions in their calculations and strategies of intervention. Miller and Rose suggest that governmentality is apparent in the way the state institutions operate. They point to things such as: the assumption that government reports and collected data can adequately transmit information to decision makers; the attempts to deploy programs and promulgate norms in response to issues; and the use of experts to interpret and guide decision making.[65] Miller and Rose also suggest that the underlying assumption about these activities is "an eternal optimism that a domain or a society could be administered better or more effectively, that reality is, in some way or other,

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[64] Michel Foucault, "Governmentality," in Graham Burchell, Colin Gordon & Peter Miller (eds) *The Foucault Effect: Studies in Governmentality*, (Harvester Wheatsheaf, London, 1991), pp. 102-103.
[65] Peter Miller and Nikolas Rose, "Governing Economic Life", in *Foucault's New Domains*, eds. Mike Gane and Terry Johnson, (Routledge, London, 1993), pp. 78-82.

programmable..."[66] Rutherford suggests that environmental impact assessments are a tangible manifestation of the governmentality approach to environmental problems.[67]

Newton, while accepting that Foucault has offered some original insights, points to several difficulties in trying to apply his ideas in organisational theory.[68] He outlines critiques from three schools of thought: essentialists, Marxists and feminists. Feminist studies point out that discrimination against women spans cultural and historical boundaries to operate under wide range of different discourses (eg. tribal, feudal, industrial, or modern). Newton suggests that this stability of power relations is a problem because Foucault's discourses and force relations are dynamic and should change with historical and cultural circumstances. The persistence of almost universal discrimination against women is therefore difficult to explain.[69] Although Foucault addresses issues such as "hysterization of women's bodies" in nineteenth century Europe, on the whole he neglects gender issues.[70] He also draws on an ideal of citizenship that comes from the patriarchal ancient Athenian model.[71] Feminists appear to have an ambiguous attitude towards Foucault. Diamond et. al, for example, agree with his basic idea about power and knowledge being linked, but criticise him for ignoring prevalent masculine discourses.[72] Stratford, on the other hand, uses his techniques to criticise the subjugation of both women and the environment.[73]

The origins of Foucault's neglect of gender issues may be due to his social location as a researcher. Denzin and Lincoln point out that the selection and approach to subjects will be influenced by their personal situation. "Every researcher speaks from within a distinct interpretive community, which configures, in its special way, the multicultural, gendered components of the

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[66] Miller & Rose, p. 78.
[67] Rutherford, p. 43.
[68] Tim Newton, "Theorising subjectivity in organisations: The failure of Foucauldian studies." *Organisational Studies*, (1998), Vol. 19, No. 3, p. 147.
[69] Newton, pp. 426-7.
[70] Newton, pp. 427.
[71] Newton, pp. 444.
[72] J. Diamond, et. al., *Feminism and Foucault: Reflections on Resistance*, (Northeastern University Press, Boston, 1988), pp. X & XIV-XVI.

research act."[74] Foucault's philosophical interests, early mentors, and sexuality may explain his neglect of gender issues.[75] The situation of researchers does not invalidate their work, it simply helps explain their choices. The fact that Foucault's techniques can be, and are, used by feminists is testament to this point. His work may not cover the issues preferred by some theorists, but it is still valid.

The problem of explaining the persistence of some force relations and discourses is an issue taken up by Marxist critics of Foucault. They claim that he does not account for the impact of real material circumstances on power relations. Although markets are themselves constructed, they are quite ubiquitous and impose a particular kind of material discipline on individuals across different societies.[76] Further, Foucault offers no project for labour to resist exploitation, he only considers individual discourses.[77] Foucault deliberately set out to study 'things as they are' and he wanted to avoid the distortion of data by totalising theories. Although he was trained within the structural Marxist school, he rejected the notion of real material interests and a dominant ideology. This is why he was reluctant to set his work within a broader Marxist framework.[78] As a consequence, the notion of resistance is problematic for Foucault. This point will be taken up in the next section when critical theory is discussed.

The problem of resistance spills over into the essentialist critique. Foucault appears to assume that there is no essential 'self' or nature within humans. In industrial societies we are constructed by managerial and market discourses that make us insecure but at the same time promise to solve our insecurity if we normalise our behaviour.[79] The essentialists ask why we are so receptive to discourses and Foucault does not appear to have an answer. If we are predisposed to accept discourses, we must have an essentially receptive nature that is not wholly constructed. If some fundamental discourses make us receptive to

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[73] Stratford, p. 58.
[74] Denzin & Lincoln, pp. 23-4.
[75] Eribon, pp. 62-5.
[76] Newton, p. 425.
[77] Newton, p. 437.
[78] Foucault in Rabinow, pp. 6 & 60.
[79] Newton, pp. 418-21.

discourses in general, why do we accept those first discourses?[80] Further, why is it that some individuals are able to reject or manipulate discourses if they are under their sway?[81]

This critique leads to the problem of agency. If individuals are constructed and directed by discourses, how is it that they are not only able to resist, but also able to effect some change?[82] Constructivism also has difficulty with this point. Haas tries to steer a middle road arguing that institutions may constrain and empower actors, but they do not determine individual actions.[83] There is still some room to move that allows individuals to act as agents for change. This point leads to another major political debate about whether power is a relation that constrains individuals within institutions, or an instrument that can be wielded by agents in office.

The idea of power as an instrument or capacity is one that has been challenged by Hindess.[84] He identifies two main streams of thought in the literature on power that he traces back as far as Hobbes and Locke: power as a capacity (or instrument) and power as a right (or relation). The problem with the capacity approach is that it ignores the context in which power is being deployed. In particular, differences in the type of capacity are ignored. For example, wealth is a different power resource to physical strength so the outcome of a contest between them will depend on external factors such as the type of contest. Further, there is a deterministic element to the capacity approach because the distribution of power at the start of a contest should determine its outcome since there is no room for contextual differences that may provide temporary strategic advantage.[85] A physically weak but richer person may win a bidding contest to purchase a house but then lose a fist fight to their poorer but strong opponent.

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[80] Newton, p. 424.
[81] Newton, p. 429.
[82] Newton, pp. 429-31.
[83] Haas, p. 8.
[84] Barry Hindess, *Discourses of Power*, (Blackwell, Oxford, 1996). pp. 1-5.
[85] Hindess, pp. 29-33.

The alternative approach, that of power as a right, is a camp in which Hindess places Foucault. The idea here is that power is based on consent, this consent depends on social context, and the dominant person is perceived to have a right to power by the subordinates.[86] Hindess sees Foucault's approach as superior to both Lukes and the instrumentalist Marxists. It is also more promising than structural Marxism because it replaces the concept of a single dominant ideology with the concept of a plurality in rationalities that allow power to be both dispersed throughout society and concentrated in social structures.[87] Finally, the importance of context undermines Lukes statement of power as a reversible generic formula.[88]

Foucault's work may also lead to a relativistic paralysis. This happens if it is assumed that all knowledge is wholly constructed by discourses. If this is accepted then even if an external reality exists, no knowledge of it is possible and all we have are fictions created by the discourses we hold. This leads to the sceptic's dilemma that we cannot know anything and must doubt everything ... even the premise that we must doubt everything! Poster uses this problem to point out that Foucault's own research may just be a fictional construction of discourses.[89] Foucault appears to be aware of this dilemma.

> I am fully aware that I have never written anything other than fictions. For all that, I would not want to say that they were outside the truth. It seems plausible to me to make fictions work within truth, to introduce truth-effects within a fictional discourse, and in some way to make discourse arouse, "fabricate", something which does not yet exist, thus to fiction something. One "fictions" history starting from a political reality that renders it true, one "fictions" a politics that does not yet exist starting from a historical truth.[90]

Rutherford argues that Foucault was not a total relativist when it came to knowledge of an external universe. On the one hand, Foucault did adopt a critique of the human centred sciences, such as psychology and medicine, because people were constructed as subjects and caught up in the web of force relations and

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[86] Hindess, pp. 96-100
[87] Hindess, pp. 141-147.
[88] Lukes, p. 34.
[89] Mark Poster, *Foucault, Marxism and History*, (Polity Press, Cambridge, 1984), p. 163.
[90] Foucault in Dreyfus & Rabinow, p. 204.

discourses. On the other hand, Foucault's approach to the natural sciences, such as physics and chemistry, was very different. He appeared to assume that while the natural sciences may have been a product of power relations in their infancy, at some point they detached themselves from its influence.[91]

Rutherford disagrees with Foucault's treatment of the natural sciences and argues that the specific ecological discourse that influences our perception of nature and environmental problems is a product of "big science" and "systems" discourse that emerged from US corporations in the post-war period.[92] Despite this criticism, Rutherford still argues that the influence of power relations and discourses on environmental problems does not make them any less real. It does, however, affect our understanding of them and our response.[93]

Rutherford suggests that Foucault's view of science neglects the insights offered by constructivism and Thomas Kuhn.[94] Kuhn, however, was not an absolute relativist either. He argued that all fields of systematic knowledge begin at a pre-science stage where alternative theoretical approaches compete for acceptance.[95] Some disciplines in the social sciences (eg. political science), have not and may not leave this stage. At some point, however, one paradigm may become the dominant approach to the field of study (eg. Newtonian mechanics). From then on the majority of researchers are engaged in "normal science" activities that attempt to tease out details.[96] During this process anomalies are discovered in the dominant paradigm that eventually build up to trigger a revolution where researchers switch to an alternative (eg. Einstein offering a better explanation of mass and gravity than Newton).[97] Kuhn speaks of reality being socially constructed in the sense that scientists working under different paradigms inhabit 'different worlds' that have unique values, routines, subjects, problems and

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[91] Rutherford, pp. 46-8.
[92] Rutherford, p. 45.
[93] Rutherford, p. 52.
[94] Rutherford, p. 47.
[95] Thomas Kuhn, *The Structure of Scientific Revolutions*, (University of Chicago press, Chicago, 1970), p. 4.
[96] Kuhn, p. 103.
[97] Kuhn, pp. 102 & 108.

techniques.[98] Although there are no objective criteria for comparing competing sources of knowledge, Kuhn identifies five conventions that tend to be accepted across different scientific paradigms: accuracy, consistency, broadness of scope, simplicity, and fruitfulness.[99] The notion of accuracy suggest that even Kuhn assumes that there is some external reality. All the natural sciences can claim is that the perceived universe appears to work as if their models are correct, to within the limits of observation.

Given the preceding discussion, I would suggest an interpretation of Foucault's work based on two reasonably plausible premises. First, we may assume that there is an objective universe existing independently of ourselves. Second, we may accept that even though we may not have direct access to completely objective knowledge about this universe, at least some of the sense data reaching our minds is causally connected to that universe. There is a strategic justification for these premises based on game theory and the principle of minimising the maximum cost. In the first place, we are faced with the option that either the universe exists, at least approximately as we perceive it, or it does not. Then there is a choice as to whether we act as if this perceived universe is real. We can create a table of possible outcomes in terms of the maximum cost that they may entail.

Table 2.1: Perceptions v. Behaviour

	There is an external Universe that exists approximately as perceived	There is not an external Universe that exists approximately as perceived
We behave as if the universe exists approximately as perceived	A) No cost.	B) We are all mistaken about the nature of the universe.
We do not behave as if the universe exists approximately as perceived	C) We may ignore a threat that may ultimately end our existence (either individually or collectively).	D) No cost.

The outcomes denoted by A and D entail no cost from being mistaken because our perceptions and actions match. Outcome B may carry some hidden risk, but we

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[98] Kuhn, pp. 111 & 150.
[99] Kuhn, p. 199.

vary in their interpretation of the significance of these events.[100] A pro-development discourse may assume that they are unrelated, freak accidents that could be avoided in future with more careful management. An environmental discourse may take them as indicative of much deeper, systematic problems. But the differences between these rival discourses do not change the inter-subjective consensus (barring the conspiracy theory) that these events occurred.

The impact of these events was significant both for institutional learning and the development of pro-environment discourses. They were influential in stimulating the state to respond by restructuring itself to create environment protection organisations and sustainable development policies. Thus external events do appear to have an impact on the shape of the web of force relations/discourses and help give rise to new institutions. This is in accord with Foucault's ideas and Haas' constructivism. Such an approach is also supported by Clark and Jennings in their analysis of the impact of incidents that lead to employees to question the legitimacy of their firm's activities.[101]

The difficulty then becomes how to identify the elements of knowledge that have some external basis, and to determine how to compensate for the effects of discourse. While there may be no wholly satisfactory way to achieve this separation, I would suggest that there are some criteria for assessing the plausibility of knowledge. These criteria are similar to the tests for trustworthiness used by constructivists outlined by Denzin and Lincoln. "Trustworthiness consists of four components: credibility, transferability, dependability, and confirmability".[102] This trustworthiness is established by a comparative triangulation of data from different sources. Such criteria are similar to the conventions for comparing knowledge across paradigms offered by Kuhn.[103]

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[100] Tom Jagtenberg, "The end of nature?", *Australian Journal of Communication*, (1994), Vol. 21, No. 3, pp. 17-9.
[101] Vivien Clark, & P. Devereaux Jennings "Talking about the natural environment: A means for deinstitutionalisation?", *American Behavioural Scientist*, (1997), Vol. 40, No. 4, p. 455.
[102] Norman Denzin, "The Art and Politics of Interpretation", in Norman Denzin & Yvonna Lincoln (eds.) *Collecting and Interpreting Qualitative Materials*, (Sage, London, 1998), pp. 330-1. Norman Denzin & Yvonna Lincoln, "Introduction: Entering the Field of Qualitative Research", in Norman Denzin & Yvonna Lincoln (eds.) *Collecting and Interpreting Qualitative Materials*, (Sage, London, 1998), p. 27.
[103] Kuhn, p. 199.

Something that originates externally would tend to generate inter-subjective sense data. At a simplistic level, if lots of different people saw the Cuyahoga river catch fire, knowledge of the event is more plausible than if there was only one witness. Alternatively, if many independent researchers arrive at a similar conclusion or are able to replicate a result, the findings could be regarded as inter-subjective and more plausible. This does not mean that a lot of people cannot be misled in a similar fashion, only that it is less likely than one person being mistaken.

Those parts of knowledge that are constructions of discourse and have little external basis, run a greater risk of being either internally inconsistent or in contradiction with other knowledge. Claims from business that there are no environmental problems are contradicted by the incidents mentioned, suggesting that they are based more on discourse than external sense data. Alternatively, the promotion of an expanding US-style consumer society in Agenda 21 is internally inconsistent with the stated aims of conserving resources and protecting the environment.[104]

On the basis of this analysis, the best we can hope for is that knowledge is more likely to be at least partly causally connected to the universe if it is inter-subjective, internally consistent and free of external contradictions. While these features may separate it from purely discourse based knowledge, they will not guarantee that it is infallible or free from risk.

Foucault offers both a useful strategy for analysing state institutions and a plausible explanation for power and knowledge. His theories about governmentality and the web of force relations/discourses generate a dynamic model for the creation, operation and demise of state institutions. At many points his approach is consistent with constructivism, and his techniques have been successfully used by researchers investigating state environmental intervention. There are, however, some problems with his approach that relate to the apparent persistence and ubiquity of some power relations, the capacity of actors to

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[104] Meister & Japp, pp. 404 & 416.

instigate change, the ability to resist, and the reliability of knowledge. This suggests that Foucault's ideas need to be located within a broader theoretical framework that engages in the debate about the purpose of the state. Critical theory may provide such a framework through the mutual Marxist origins that it shares with Foucault's work.

5) Critical Theory & State Environmental Institutions

Critical theory developed from the Frankfurt School's attempt to reconcile Marxism with social theorists like Hegel, Kant, Freud, and Weber. It began with the work of Horkheimer in the 1930s and was developed by theorists such as Heidegger, Marcuse and Habermas.[105] The term is now commonly used in a much broader sense to encompass many structuralist, post-structuralist, neo-Marxist, feminist and post-colonial thinkers, including Foucault, Derrida, Althusser, Gramsci, Said and Benhabib.[106] Although such a broad range of thinkers makes a definition difficult, Geuss identifies three common features of critical theories.

> 1. Critical theories have special standing as guides for human action in that:
>   (a) they are aimed at producing enlightenment in the agents who hold them, ie. at enabling those agents to determine what their true interests are;
>   (b) they are inherently emancipatory, ie. they free agents from a kind of coercion which is at least partly self-imposed, from self-frustration of conscious human action.
> 2. Critical theories have cognitive content, ie. they are forms of knowledge.
> 3. Critical theories differ epistemologically in essential ways from theories in the natural science. Theories in natural science are objectifying; critical theories are reflective.[107]

The key feature is that they all assume a link between power and knowledge that affects consciousness.[108] The previous section demonstrated at some length how Foucault developed this link in his model of discourses, but the original connection was made by Marx in *The German Ideology* and developed in *Das*

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[105] Payne, pp. 118-9.
[106] Tallack, pp. 1-7. Payne, pp. 436-7. Stephen Bronner, *Of Critical Theory and its Theorists*, (Blackwell, Oxford, 1994), pp. 4, 12 & 15.
[107] Raymond Geuss, *The Idea of Critical Theory: Habermas and the Frankfurt School*, (Cambridge University Press, Cambridge, 1981), pp. 1-2.
[108] Geuss, pp. 2-3.

there remains the problem of the function of the state and its institutions. Earlier studies by Max Weber looked at the workings of state bureaucracies and many of his ideas were incorporated into critical theory through the Frankfurt School. He found that underlying bureaucratic institutions was a belief system that valued such things as strict discipline, the mechanisation of tasks, a sense of honour and status, impartiality, "precision, speed, unambiguity, knowledge of the files, continuity, discretion, unity, strict subordination", specialisation and calculation.[115] The ideological commitment to these principles worked to support capitalist economics. The mechanism outlined is echoed in the concept of governmentality, but Foucault was reluctant to locate his ideas within a broader theory of the state and its relation to business/capitalists. This issue has been addressed by many critical theorists.

In essence, critical theorists argue that state institutions in capitalist societies function to protect the interests of business. Miliband points out that although there is a superficial plurality of parties and pressure groups in liberal democratic societies, there is little dispute about fundamental belief in the legitimacy of capitalism amongst political leaders. As a result, state intervention is designed to support capitalism regardless of which party is in power. This support is not viewed as favouring or working for business, it is just seen as good policy. Further, the circulation of technocrats between jobs in the private and public sector helps inject a pro-business ideology into state institutions.[116]

Abbey argues that major business leaders have better access to government officials and an "ability to mould the thoughts and wishes of the citizenry."[117] Wilson suggests that trans-national firms have a major influence over governments because of their control of productive capital and knowledge. He cites a case where the CIA helped the overthrow of the government of Guatemala in the 1960s because it intended to nationalise the US-based United Fruit Company. With regards to the environment, he suggests that the rise of regulatory

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[115] Max Weber "Bureaucracy" in *From Max Weber: Essays in Sociology,* eds H. H. Gerth & C. Wright Mills, (Oxford University Press, New York, 1958), pp. 208-15.
[116] Ralph Miliband, *The State in Capitalist Society,* (Weidenfeld and Nicolson, London, 1970), pp. 69-75 & 125.

activity in the late 1960s and early 1970s was possible largely because business was caught off-guard.[118]

McEachern argues that the capitalist ideology essentially shapes "the space and manner in which the state will act."[119] Although the state is not a simple puppet of business, it will defend the interest of capital. His study of the Hawke government in Australia revealed that although business did not get everything it wanted it had "the luxury of only small differences between two major parties, each vying to find ways to ensure advantage for private business."[120] He suggests that environmental intervention during this period (that constructed CEPA and sustainable development policies) was motivated largely by a desire to protect business from disruptive environmental disputes, even when business opposed government policy.[121]

Broad points out that in the international realm, capitalist development has generated huge inequalities in wealth, exacerbated poverty, and damaged the environment. Despite this, the prevailing paradigm of economic development has been to blame the poor, not the rich for environmental destruction. He produces evidence that shows that the rural poor in developing countries have often managed the environment more sustainably than industry, yet the ideological commitment to industry remains.[122]

Broad's analysis is backed up by Chatterjee and Finger in their case study of the UN Conference on Environment and Development (the 1992 Earth Summit) in Rio.

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[117] B. Abbey, "Power, politics and business", *Politics*, (1987), Vol. 22, No. 2, p. 48.

[118] Graham Wilson, *Business and Politics: A Comparative Introduction*, (Macmillan, London, 1985), pp. 118-120 & 19.

[119] Doug McEachern, *A Class Against Itself: Power and Nationalisation of the British Steel Industry*, (Cambridge University Press, Cambridge, 1980), p. 27.

[120] Doug McEachern, *Business Mates: the Power and Politics of the Hawke Era*, (Prentice Hall, Sydney, 1991), p. 153.

[121] McEachern, *Business Mates*, p. 125.

[122] Robin Broad, "The Poor and the Environment: Friends or Foes?", *World Development*, (1994), vol. 22, no. 6, pp. 812-8.

Neither Northern consumption, nor global economic reform, nor the role of transnational corporations, nor nuclear energy, nor the dangers of biotechnology were addressed in Rio, not to mention the fact that the military was totally left off the agenda. Instead, free trade and its promoters came to be seen as the solution to the global ecological crisis.[123]

They saw Agenda 21 and the process of its development as dominated by business organisations, rhetoric and ideology.[124] They suggest that governments were not up to the challenge and stood back to let business run the policy agenda.[125] They did, however, note that past changes in business behaviour towards the environment have always been forced by regulation.[126]

De La Court offers a post-colonial critique of the World Commission on Environment and Development (chaired by Gro Harlem Brundtland) that reported in 1987. He suggests that it is foolish to advocate more industrial development as a solution to environmental problems because the problems were caused by industry's use of the environment in the first place. Further, he claims it is unrealistic to expect trans-national companies to behave responsibly in the third world given their past record. Finally, he claims that advocating policies like sustainable development will only support oppressive governments and businesses.[127] Gallopin, Gutman and Maletta, support similar criticisms but from a neo-Marxist perspective.[128]

O'Connor suggest that capitalism's mistake is to treat labour and capital as commodities. This leads to social injustice and environmental problems. In his view "the state does little more than regulate capital's access to production conditions" such as labour and the environment.[129] There is a need, therefore, to

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[123] Pratap Chatterjee & Matthias Finger, *The Earth Brokers: Power, Politics and World Development*, (Routledge, London, 1994), p. 40.
[124] Chatterjee & Finger, p. 105.
[125] Chatterjee & Finger, p. 111.
[126] Chatterjee & Finger, p. 133.
[127] Thijs De La Court, , *Beyond Brundtland: Green Development in the 1990s*, (Zed Books, London, 1990), pp. 68, 78 & 118-9.
[128] Gilberto Gallopin, Pablo Gutman & Hector Maletta, "Global impoverishment, sustainable development and the environment: a conceptual approach", *International Social Science Journal*, (August 1989), vol. 41, pp. 380-7.
[129] James O'Connor, "A political strategy for Ecology Movements," *Capitalism, Nature, Socialism*, (March 1992), Vol. 3, No. 1, pp. 1-5.

make the state more responsive to the citizens. His arguments extend to international institutions such as the IMF and the World Bank that he claims should be elected. The idea is to structure national and international institutions so that they are more responsive to social needs instead of the demands of business.[130]

Dryzek argues that present state hierarchical institutions, such as the US EPA, cannot adequately address the environmental problems associated with industry for three reasons.[131] First, there is no common purpose within the state. Second, hierarchies are too inflexible to deal with complex problems because they cannot adequately deconstruct them. Third, hierarchical systems obstruct the flow of information needed for effective problem solving. Simply giving existing state institutions more power will therefore not be adequate.[132] Dryzek's solution includes: the promotion of a public sphere in which strong and vociferous social movements constantly challenge the state; the restructuring of state hierarchies into flexible multi-skilled teams with more public consultation and democratic decision making; and the extension of these changes to private organisations so that economic decision making also becomes more democratic.[133] His aim is to encourage "communicative rationality".

> [C]ommunicative rationality is conducive to social problem solving in as much as it enables the individuals concerned with different facets of a complex problem to pool their understandings and harmonise their actions in the light of reciprocal understanding of the various normative issues at stake. This process proceeds in non hierarchical fashion, and so no cognitive burden is imposed on any decision centre.[134]

This notion bears some resemblance to the institutional learning, epistemic communities and consensual knowledge ideas of Haas, but Dryzek's proposals are

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[130] James O'Connor, "Think Globally, Act Locally?" *Capitalism, Nature, Socialism,* (December 1992), Vol. 3, No. 4, pp. 1-8.

[131] Dryzek, "Designs for Environmental Discourse", in Robert Paehlke and Douglas Torgerson (eds), *Managing Leviathan: Environmental Politics and the Administrative State,* (Belhaven Press, London, 1990), pp. 99-101.

[132] Dryzek, "Ecology and Discursive Democracy", *Capitalism, Nature, Socialism,* (June 1992), Vol. 3, No. 2, issue 10, pp. 24-27.

[133] Dryzek, "Ecology and Discursive Democracy", pp. 31, 35, 37 & 41.

[134] Dryzek, "Designs for Environmental Discourse", p. 102.

actually founded on theories of communicative competence, public spheres, and ideal speech forums developed by Habermas.[135] The idea is that if individuals with different interests participate in ideal decision making forums, they will negotiate until a consensus is struck that is in accord with a general interest. Special interests should be stripped away as participants attempt to justify their position and persuade the rest of the group.[136]

A major problem with this proposal is that if the perception of interests and knowledge are even partly socially constructed or affected by discourses, the outcome of these forums may not be in the general interest. If there was a commonly held discourse among the participants, the outcome would be a consensus biased by that discourse to favour some dominant interest. This point was made by Meister and Japp who suggest that consensus may actually be an indication of a hegemonic power at work.[137]

Dryzek and Habermas appear to both be aware of the difficulties of establishing a truly ideal speech forum because of the effects of discourse.[138] Dryzek acknowledges that there are different ways of thinking, that are largely influenced by the activity in which individuals are engaged. He sorts these ways of thinking into five categories of rationality: economic, social, legal, political, and ecological. Dryzek argues that ecological rationality should have priority because without a viable ecology, there can be no society, economics, law, or politics. He then goes on to identify several features of ecology that should be included in the proposed alternative structures:

> [N]egative feedback (the production of responses to human-induced shortfalls in life-support capability), coordination (across both actors and decisions), robustness (of performance across different circumstances), flexibility (in adjusting structure to cope with novel conditions), and resilience (the ability to correct severe disequilibrium).[139]

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[135] Haas, pp. 21-24, 31 &41. Jurgen Habermas, "Towards a Theory of Communicative Competence", *Inquiry*, (Winter, 1970), Vol. 13, pp. 360-375.
[136] Dryzek, "Ecology and Discursive Democracy", p. 40.
[137] Meister & Japp, p. 417.
[138] Dryzek, "Ecology and Discursive Democracy", p. 41; & Habermas, pp. 372-374.
[139] John Dryzek, *Rational Ecology: Environment and Political Economy*, (Basil Blackwell, Oxford, 1987), pp. 11-12 & 31.

The idea is that if social, economic, legal and political choice mechanisms had these attributes, they could adequately identify and respond to ecological problems that threaten their fundamental existence. Dryzek recognises that "moral persuasion" is a potentially significant influence on decision makers and outcomes.[140]

> In a political context, moral persuasion can take a number of forms: education, propaganda, discussion, reasoning, linguistic manipulation, and exhortation. The agents of persuasion therefore include educational institutions, the media, religious institutions, and political leaders, activists, and organisations. In this form of social control, then, there is no threat of force, no sanction of law, and no place for the material incentives used in administered and market systems. Moral persuasion as a distinctive form of social choice retains a high degree of individual autonomy and volition.[141]

However, Dryzek plays down the effectiveness of moral persuasion in societies such as the USA or Australia.[142] He maintains that more participatory decision making forums should redress at least some of the current imbalance in power, even if they are not ideal.[143] Further, he continues to harbour some hope for ideal speech because he believes that a general interest in achieving ecological rationality is obvious.[144] In essence, Dryzek is proposing to open up public debate, establish democratic forums for decision making, and promulgate ecological rationality.[145] In more recent work Dryzek explores the range of discourses within the environmental debate and the effects of these discourse on institutions.[146] He still, however, maintains that a restructured, ecological democracy would help the community recognise its common interests in a healthy environment.[147]

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[140] Dryzek, *Rational Ecology*, p. 85.
[141] Dryzek, *Rational Ecology*, pp. 150-151.
[142] Dryzek, *Rational Ecology*, p. 161.
[143] Dryzek, "Ecology and Discursive Democracy," p. 34.
[144] Dryzek, *Rational Ecology*, p. 204.
[145] Dryzek, *Rational Ecology*, p. 184.
[146] John Dryzek, *The Politics of the Earth: Environmental Discourses*, (Oxford University Press, Melbourne, 1997), pp. 10 & 19.
[147] Dryzek, *The Politics of the Earth*, p. 200.

But there is still a tension between the treatment of rationality by Dryzek as opposed to Foucault. Consider Dryzek's identification of a hierarchy of categories for rationality with ecology at the top and the selection of features that should be adopted by social decision making structures. This approach is itself affected by discourses that guide the choice of rationality types, promote the belief that ecology is superior, and bias the choice of desirable attributes. At a deeper level, the idea that both society and nature can be systematised in this way is a product of scientific rationality that emerged during the enlightenment. Foucault might argue that this is just another discourse that requires justification. Accepting Foucault's point does not mean that Dryzek's approach is unreliable as a form of knowledge. What it does mean is that discourse is a significant factor both in Dryzek's line of argument and the model for social reform that he proposes.

Critical theories offer four insights that are lacking in Foucault's work: they locate society within the context of an international political-economy; they offer a comprehensive explanation for the nature and purpose of the state; they provide a target for resistance (business power), and; they suggest a strategy for reform. They have also produced some convincing evidence that business is systematically favoured by state institutions. Proposals for restructuring society are many and varied, but the underlying purpose is to make business and state institutions more responsive the needs of people and the environment. There remains, however, a major difficulty. Having raised the problem of ideology or discourse, restructuring the institutions of power to be more participatory may not lead to the desired outcome. This makes the project of emancipation more difficult.

6) A "Trans-Structural" Research Strategy

Based on the above analysis, I would suggest a hybrid "trans-structural" research strategy that incorporates the relevant insights of constructivism, Foucault's organisational analysis, and critical theory. I have selected the "trans-structural" label for three reasons. First (as with Foucault and critical theory), this approach transcends classical Marxist structuralism because: it does not assume that all

capitalist politics can be reduced to class struggle; it does not subscribe to historical determinism; it embraces a plurality of discourses in place of a single ideology; and it permits significant reforms to be achieved without revolutions. Second, although trans-structuralism is derived in a specific institutional context, it can be applied in the personal, state and international domains (as with constructivism and critical theory). Third, trans-structuralism offers a dynamic model of power that permits substantial social transformation and structural diversity.

This thesis is a comparative study of the power of state environmental institutions to influence industry. It is therefore necessary to develop a coherent model of state institutional power that can mesh productively with the empirical research. This interaction should work two ways: the theory should identify strategic points for analysis while the empirical findings feed-back to inform and modify the model. Based on the preceding analysis, there appear to be four desirable attributes for an appropriate model of institutional power: it should be defined in context; it should explain how power is experienced at the personal level; it should be consistent with a plausible explanation of the purpose and structure of the state; and it should generate a useful method for analysis.

Two of the insights previously mentioned provide useful starting points for research strategy. First, it is reasonable to assume that there are hidden elements of power that coalesce around social structures (as critical theory, Foucault and constructivism suggest). Second, Foucault's notion of a web of force relations and discourses is quite plausible. Two questions then arise that Foucault did not adequately answer: what is it that makes these force relations/discourses align, and what makes the web contort in such a way that a particular institution (such as an EPA) will arise? I would support Haas' view that external incidents (such as those outlined in chapter one) can impinge upon the web in a way that creates a stimulus for substantial reorganisation.[148] These incidents may themselves be due to the interaction of the web with the "external" environment, such as polluting a river so much that it catches fire.

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[148] Haas, pp. 27-8.

The important point here is that the web responds by creating new institutions to resolve a constructed problem. In the case of the EPA, the purpose was to alter the way some of the existing business structures/institutions within the web were interacting with the environment. The incidents were a result of the way industry was taking raw materials from the environment, altering them in the fabrication process, then returning the waste and by-products to the environment. This resource flow is indicative of the utilitarian and economic rationalist discourses that reinforce industry's manipulative mode of relation to the environment.

According to these industry discourses a resource is anything that can be utilised by human beings. Conventional economics divides resources into sales revenue, capital investment, labour and raw materials. I will add knowledge as a fifth category and diverge from some of the classical economic definitions. Capital will be taken as both the financial backing of the firm and its physical assets, such as buildings, plant, equipment, and stock. Labour, as a resource, constitutes not just the physical exertion of employees, but also their skills, experience, mental exertions, and judgement. The concept of raw materials as a resource will be recast as a broader concept of natural resources. This encapsulates any part of the environment that is useful to human beings and will include not only the traditional energy and primary industry sectors, but also environmental services such as clean air, water and land, that are often taken for granted.

I categorise knowledge as a resource because it has a utility value in both the production and distribution of industrial goods and services. On the micro level, technical, economic, and organisational knowledge are essential for firms to make use of labour, capital and natural resources. At the macro level, knowledge identifies: what can be used as a resource; how it can be used; how production can be organised; where production can take place; how products can be distributed; and what demand there is for a product. Knowledge is both a product and component of discourses that influence how people are treated as workers, managers, consumers, or citizens. It also affects how the environment is treated.

At its most basic level, knowledge is built on external sense data that are selected, interpreted, organised, modified and utilised under the guidance of internal discourses.[149] These internal discourses can themselves be modified by both external and internal factors. It was the deployment of labour, capital, knowledge, and natural resources by industrial organisations in search of revenue that led to the environmental problems in the first place. These, in turn, catalysed the development of green discourses of resistance and led to the creation of the US EPA. This new institution was created to alter the way resources were being used by existing business institutions. In theory, the EPA should have the capacity to redirect the flow of resources through institutions. But institutions are structures within the web of force relations/discourses that make up society. Therefore, a definition of institutional power should include the capacity to redirect the flow of resources through this web.

The question of purpose requires some engagement with the concept of "interests". Interests appear as a significant factor in the analysis of the behaviour of individuals, institutions and states, so some version of interests need to be taken into account. As Haas pointed out, interests are bound up with the notion of achieving ideals or goals.[150] We can therefore define a trans-structural version of institutional power as the ability to redirect the flow of revenue, capital, labour, knowledge and natural resources through the web of force relations/discourses and structures that constitute a society, so as to advance or defend a perceived interest or ideal. This definition is specific to institutions and has been defined in the context of the rise of the environment as a political issue in the USA and Australia since the 1960s.

A trans-structural approach still has to deal with the issue raised by Hindess of whether power is a capacity or a right. As was mentioned, Haas initially offers a dualistic approach but favours capacity over right. Although he does not address Haas specifically, Hindess is critical of this kind of duality because it gets caught

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[149] This approach fits with both Kuhn, pp. 102-3, and Immanuel Kant, *Critique of Pure Reason*, (St. Martin's Press, New York, 1965), pp. 40-5.
[150] Haas, pp. 2 & 21

dealing with employers, employees, buyers or sellers, individuals engage in economic relations. The dominant and subordinate roles will be determined by contextual factors such as whether they are a seller or buyer in a buyer's market (or vice versa), or whether they are an employer or employee at a time of high or low unemployment.

Dealing with voluntary acquaintances (through social clubs), friends or relations usually engages individuals in social relations. Here the dominant and subordinate roles will be determined by social status, which is in turn a function of social and cultural norms. These include force relations such as parent/child, priest/parishioner, or coach/player. Such relations are institutionalised through pervasive discourses on gender, sexuality, race, belief, wealth, class, and education.

The political type of relation usually occurs between citizens and officers of the state. This force relation may be backed up by the threat of coercion to establish the dominance of the state official. An example of this type of interaction would be the enforcement of regulations by police officers.

The final form of relation is between the individual and their environment. This constitutes a microcosm of the interface between the web of society and the environment. It is a unique type of relation, because it is not between people, but between an individual and their environment. This environment is part "natural", which means a predominantly non-human creation (such as so-called wilderness areas) and part "artificial" (such as the urban neighbourhood). Of course these two components are not really so neatly separate. Trees still grow in suburbs and most wilderness areas have been affected by human activity. An individual's relation with the environment is often guided by certain social and legal norms, such as property rights. In general these norms place the environment in the subordinate role, although on occasions the environment can impact on people through natural disasters or through the concentration of pollutants back up the food chain. Effects such as these are not intentional, which tends to perpetuate the environment's subordinate position.

All of these forms of personal relations are affected by institutions. The way the professions are institutionalised affects the way individuals or clients can interact with experts. The use of highly technical and exclusive language is just one manifestation of this institutionalisation that helps perpetuate the dominant position of the professional, both individually and as a group. Economic interactions are governed by the institutionalisation of property rights, markets, and laws governing employment and trading. Social interactions are institutionalised through traditional norms and socially accepted groupings (such as "families"). They may also be subject to the jurisdiction of organisations such as the family court or laws applied to voluntary associations. Political relations are institutionalised through state structures and constitutions. Relations between individuals and their environment are institutionalised through such things as town planning, private property, and parks.

The interactions of these types of relations is complex. The categories can overlap, so a subordinate colleague at work may also be a social friend. An officer of the state may also be a professional on whose technical expertise you rely (such as a social worker). Further, an individual may be dominant in one relation but simultaneously subordinate in another. A working parent may at the same time be dominant over their children, but subordinate to their employer. Relations that are considered to be equal may still temporarily cast subordinate and dominant roles that flip between the two individuals. This would occur when partners have different sorts of expertise and occasionally rely on each other for advice.

The five categories: technical, economic, social, political, and environmental, correspond to the five dimensions of industrial development. There should be no surprise in this similarity since development is a process that transforms how humans relate to each other and the environment. These five dimensions are also implicit within the policy goal of sustainable development which is an ideal model of human-human and human-nature interactions.[153] The consistency and

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[153] World Commission on Environment and Development, [with additional material from The Commission for the Future], *Our Common Future*, Chair Gro Harlem Brundtland, (Australian

recurrence of these categories supports the dissection of personal relations in this way.

The trans-structural model is founded on a web of social relations and associated discourses. At each junction or node of the web is an individual who relates to the rest of society and the external environment through technical, economic, social, political and environmental dimensions. The web can be contorted to create institutions by the alignment of force relations/discourses around the capacity to redirect the flow of revenue, capital, labour, knowledge and natural resources through the web and structures of a society. Officers of an institution such as the EPA will therefore operate under the guidance of a variety of imperfectly meshing discourses/force relations, some professional and some personal. We would therefore expect to find some instances in the case study material where competing discourses and personal loyalties come into conflict within an institution, leading to tensions between staff. The next issue to deal with is where the state fits within this theoretical framework.

With regards to structure, "the state" in Australia and the USA is the totality of all elements of the Federal, State, Local and joint public sector, including: the executive, legislature, bureaucracy, courts, police, military, and all publicly run organisations. Under the theoretical approach that has been outlined the state can be thought of as a complex set of structures that has emerged from the web of society in response to different perceived issues. As such, it should be seen as more like a set of heterogeneous institutions rather than as a single entity. Popular discourses about the state in Australia and the USA support several rights and mechanisms that distinguish it from other institutions. In the first place, the state is seen to have a monopoly on the legitimate use of coercive force. In the second place, the most senior executive decision makers of the state are selected by periodic elections in which all sane adult citizens in theory have the opportunity to participate. In the third place, the state has the theoretical power to constrain the activities of all other institutions and individuals within the society. In the fourth

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Edition, Oxford University Press, Melbourne, 1990 [original: 1987]), p. 8, 87, 109, 274-276, 305 &387.

place, the structure of the state is heavily influenced by the division of powers specified by a written constitution.

In terms of purpose, both the Australian and US states are headed by a Federal or Commonwealth government. The Australian constitution grants a set of powers to the Commonwealth parliament (under sections 51 and 52) in order for it to "have power to make laws for the peace, order, and good government of the Commonwealth".[154] The preamble to the US constitution cites a similar purpose.

> We the People of the United States, in order to form a more perfect Union, establish Justice, insure domestic Tranquillity, provide for the common defence, promote the general Welfare, and secure the Blessings of Liberty to ourselves and Posterity, do ordain and establish this Constitution for the United States of America.[155]

These constitutions suggest that the purpose of the state in both countries is to advance and protect the common interests of the citizens by maintaining peace and protecting the social order. Despite the constitutionally perceived purpose, critical theorists still debate the "real" purpose of the state. Given the complexity of the set of state institutions it is difficult to define a single clear purpose. It is reasonable to expect, however, that the social, political and economic institutions of any country will construct a context for state activities. On the strength of the analysis so far it would be reasonable to assume that advancing and protecting the perceived interests of business will be fairly high on the state's agenda in both the USA and Australia. Institutions such as private property and the market delegate major development decisions to the private sector.[156] The desire of governments to promote development places the owners or controllers of productive capital in a privileged position with respect to the state, but the mechanism for the creation of this structural context may not be straightforward.

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[154] Colin Howard, *Australia's Constitution: What it Means and How it Works*, (Revised Edition, Penguin, Victoria, 1985), p.171.
[155] Anastaplo, George, *The Constitution of 1787: A Commentary*, (John Hopkins University Press, Baltimore, 1989), p. 266.
[156] A point made by Lindblom, pp. 171-172, among others.

The trans-structuralist approach suggests that the context of power is a structural property that is a function of the institutions and social web. Institutions grow because of the force relations/discourses of which they are created align. This alignment in turn, forms a feed-back loop with the institutions capacity to redirect the flow of revenue, capital, labour, knowledge, and natural resources. On one hand, the state in Australia and the USA does not have direct control of revenue, capital or labour, although it can regulate their deployment. Further, it only has a limited ability to disseminate knowledge and withhold or release natural resources for development.

Business, on the other hand, has direct control of the majority of productive capital and can significantly influence revenue in the USA and Australia. It also has a large degree of choice about the deployment of labour, although this may be moderated by regulation and the ability of unions to resist some decisions. Further, business has a virtual monopoly on productive technology through the control of R&D, patents, industrial secrecy agreements, and intellectual property rights (see chapter one).[157] The majority of the media, which is the primary source of public knowledge, is privately owned and the majority of advertising and marketing information originates from the private sector. The ability of business to either buy freehold or lease natural resources is another source of power.

All of this suggests that business is in a position of structural advantage over the state in Australia and the USA (a point made by many of the critical theorists mentioned in the previous section). Trans-structuralism allows this effect to be visualised as the warping of the web of force relations/discourses due to the concentration of the capacity to control resources around large business structures. The warping becomes greater as the concentration of resource control, particularly the accumulation of capital, intensifies. This means that we would expect to find evidence that the fundamental shape of the social fabric of a society actually favours large business organisations, while the state, even if it was once the central set of power structures, is shifted to one side. As a result, business would

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[157] Organisation for Economic Co-operation and Development [OECD] *Industrial Policy in OECD Countries: Annual Review 1993,* (OECD, Paris, 1993), p. 127.

be expected to take centre stage as the productive interface between society and the environment and the state becomes a kind of regulatory moderator between business, society and the environment.

This prediction does not mean that the state should have no power at all over business, nor does it mean that every firm gets what it wants all the time (all of the studies surveyed confirm this point). We would still expect that institutions within the state could significantly affect the shape of the domestic market through financial incentives and penalties, direct regulation, the dissemination of strategic information, and directing the purchases of bureaucratic supplies. At the extreme, these institutions have the theoretical ability to eliminate profitable markets against the wishes of large business organisations, although we would not expect that this potential would be called on very often.

What must be borne in mind is that the central discourse for the state (at least in Australia and the USA) is the perceived need to promote a profitable business sector and the desire to get or keep industry on shore. This has manifested itself in the rise of economic rationalist discourses among senior decision makers both inside and outside the state. Underlying these discourses is the assumption that a strong business sector will be in the general interests of citizens by generating wealth and employment. This discourse arises precisely because the business structures that emerged have altered the shape of the social web so as to generate a perceived interest for states to act in this way. This is why concerns about the negative impacts of regulation on the competitiveness of industry and the fear that firms may move offshore have been a constant feature in the debate surrounding the rise of environmental regulation in both the US and Australia.

The trans-structural hybrid moves beyond traditional Marxist structuralism on these explanations of business-state relations. It also avoids the tendency to try to reduce everything to class struggle and allows for a multiplicity of discourses and force relations to be at work. This explains the growth in alternative discourses on race, gender, sexuality, and the environment, that critical theorists have associated with new social movements.

Trans-structuralism also avoids the deterministic tendencies of traditional Marxist structuralism. The web may be warped in this way for the US and Australia simply because institutions have been developed that concentrate the capacity to direct resources in large business structures. There is nothing inevitable about this situation, however, and the web retains the capacity to change and produce new relations, structures, discourses and outcomes. The former USSR, for example, created structures that concentrated the capacity to direct resources in the hands of the state. This warped the social web around state institutions rather than business. These structures persisted for several decades then collapsed under both internal and external pressures, allowing new power structures to emerge in their stead. Just as it was difficult to foresee the collapse of such structures, so it is difficult to foresee the replacement of large business institutions in Australia and the USA with alternatives.[158] This does not mean that it is either impossible or inevitable.

Trans-structuralism predicts that the state in Australia and the USA should behave as a collection of semi-autonomous institutions with varying political agendas. As a whole, the state should act as a mediator between business, society and the environment, but the perceived interests of large business institutions can be expected to be given priority because of the warping of the web of force relations/discourses in their favour. There may be instances where the perception of interests is misleading and there is nothing inevitable or permanent about the distribution of power. This view of the state is consistent with the trans-structural assertion that power is the ability to redirect the flow of revenue, capital, labour, knowledge and natural resources, through the web of force relations/discourses of society, so as to advance or defend perceived interests or ideals. This social web and the institutions it produces delimit the political space or context within which this capacity can operate effectively.

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[158] Many theorists writing only a couple of years before the fall of the Berlin Wall failed to see the collapse of the USSR coming. See for example the closing comments in Paul Kennedy, *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000*, (Random House, New York, 1987).

The final requirement for a new theoretical approach is that it needs to develop a method for evaluating the relative power of institutions such as the state and business. This requires the theory to give some indication of how to identify and analyse the deployment of power, as well as suggesting what structures to study.

According to the trans-structuralist approach, the thing to look for is evidence that an institution is able to significantly redirect the flow of revenue, capital, labour, knowledge and natural resources, through society. Such evidence can come from trends in consumption patterns, investment, the deployment of labour, the dissemination of information, and the extraction and disposal of raw materials. These effects are recognisable, and the first three can even be quantified in dollar terms. This may present the opportunity of measuring the effectiveness of an institution using a cost-benefit style of analysis where the dollar value of resources redirected is compared to the money spent by the institution. A trans-structural approach may therefore provide an opening for both quantitative and qualitative empirical analysis.

In trying to identify points for analysis, a few things are useful. First, the relative degree of power may be revealed by adopting a kind of perturbation theory approach. In essence this means that the power of a structure (or individual decision maker within that structure) will be indicated by how much of the social web is affected when things go wrong: how many resources are misdirected, how many people (present and future) are affected, and how much restructuring of the web's institutions occurs when things go wrong? The relative power of US industry may be indicated by the series of environmental incidents that led to the restructuring of the state to form the EPA in the first place. Anything that generates problems which an agency of 19,000 people spending US $7 billion a year cannot solve is obviously very significant!

The second point about identifying the loci of power is to consider how much the perceived interests of the subject are aligned with existing major power structures. This may indicate the context of resistance faced by any attempt to influence the flow of resources. The thing to look out for is a discrepancy between the

theoretical powers of an institution and its actual impact. Identifying the size and cause of this difference will give an indication of the context of power within the web.

The third factor to consider is how broad or deep is the power base of the subject? Does it influence all forms of resources, such as major trans-national conglomerates, or does it have only one to draw on, such as knowledge? How important is the control of this resource to existing major power structures?

The trans-structural theoretical approach therefore appears to offer a practical game plan for the empirical research. It indicates some of the possible indicators of power, it suggests where to look for power, and it opens up the possibility of delimiting the context within which power operates.

Conclusion

This analysis suggest that constructivism, Foucault and critical theory all offer useful insights that are pertinent for assessing the ability of state environment protection institutions to make industry sustainable. Trans-structuralism offers a hybrid research strategy that has been informed by these theories and can be tempered by the empirical research findings. It constructs a model that provides a way to define institutional power in context, generates a plausible explanation for the purpose and structure of the state, is consistent with power at the personal level, and generates a concrete analytical agenda.

Trans-structuralism defines institutional power in the USA and Australia as the ability to redirect the flow of revenue, capital, labour, knowledge and natural resources through the web of force relations/discourses and structures that constitute a society so as to advance or defend perceived interests or ideals. This social web and the institutions it creates give this ability its context and mechanism. Analytically, indications of institutional power can be identified by tracing significant changes to consumption patterns, investment, labour deployment, the dissemination of information, and the extraction and disposal of

raw materials. Some of these effects can be quantified. This research strategy offers a practical guide to the analysis of the empirical data that is presented in the following chapters.

Chapter Three

The US EPA in Theory

Introduction

The methodological and theoretical frameworks developed in chapters one and two can now be deployed in the analysis of the empirical data. This chapter introduces the US case study material by analysing the development of major environmental legislation and the institutional reorganisation that created the Environment Protection Agency (EPA). The first section deals with the way the web of force relations/discourses responded to the stimuli of environmental issues to create a new institution. It demonstrates how a clash of discourses and institutions hemmed in the political space available to the new agency. Sections two and three explore the manifestation of the clash of discourses in the goals and structures of the EPA. Section 4 examines the "mentality" of the agency in trying to create institutional routines that construct both problems and responses. The final section shows how the theoretical powers of the agency manifest themselves in regulations and resources. Chapter four extends the analysis by reviewing a range of case study material to explore how well this new institution worked in the face of strong resistance by powerful business institutions.

1) The Origins of the EPA

Environmental intervention in the US began at least as far back as the 1880s and built up slowly as predominantly State-based legislation until the post-war period.[1] The US Federal government began to take more responsibility for environmental regulations in the 1950s after the failure of the joint waste-water

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[1] Joseph M. Petulla, *Environmental Protection in the United States: Industry, Agencies, Environmentalists,* (San Francisco Study Centre, University of San Francisco, 1987), pp. 20, 24, & 28-29; Richard J. Lazarus, "The Neglected Question of Congressional Oversight of EPA: *Quis Custodiet Ipsos Custodes* (Who Shall Watch the Watchers Themselves)?" *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental

treatment construction program.[2] A string of environmental incidents, an embryonic environmental movement, rapidly multiplying intellectual critiques, and the political aspirations of Senator Edmund Muskie, combined to encourage further Federal intervention in the 1960s.[3]

Federal environmental laws were revised and strengthened in response to growing public concerns. The 1955 Air Pollution Control Act was substantially upgraded by both the 1963 Clean Air Act and the 1967 Air Quality Act. In 1965 a new Federal Motor Vehicles Pollution Control Act was the first law to set national emission standards.[4] The 1947 Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) was amended and strengthened in 1964.[5] In 1965 the Solid Waste Disposal Act was passed, as were Muskie's amendments to the Water Pollution Control Act that introduced tradeable pollution permits and the mentality of the market mechanism approach.[6]

In 1969 Congress passed the National Environmental Policy Act (NEPA). This act established the Council on Environmental Quality (CEQ) which was a small group of technical experts who were supposed to advise the President on environmental issues.[7] NEPA also contained what at first appeared to be a relatively minor clause that required Federal agencies to take into account the impact of new government projects on the environment. This clause led to the creation of environmental impact assessment (EIA) procedures that rapidly spread from Federal government to the States and the private sector.[8]

Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 207.

[2] Petulla, pp. 41-44.

[3] George Hoberg, *Pluralism by Design: Environmental Policy and the American Regulatory State*, (Praeger, New York, 1992), pp. 33, 43, & 79.

[4] Paul Portney, "Air Pollution Policy", in Paul Portney (ed), *Public Policies for Environmental Protection*, (Resources for the Future, Washington DC, 1990),pp. 29-30.

[5] Michael Shapiro, "Toxic Substances Policy", in Paul Portney (ed), *Public Policies for Environmental Protection*, pp. 211-212.

[6] Roger C. Dower, "Hazardous Waste", in Paul Portney (ed), *Public Policies for Environmental Protection*, p. 161; & Freeman, pp. 102-103.

[7] US Government, "Environmental Protection Agency", in *Federal Government Directory*, (Washington DC, 1991), p. 72.

[8] Hoberg, p. 44.

Chapter Three

A great deal has been written about EIA procedures and they will be dealt with in more detail later (chapter seven). It is sufficient at this stage to note three main points: (1) EIA procedures are a prime example of the mentality of the bureaucratic state that responds to environmental issues by creating new routines;[9] (2) The rapid spread of EIA procedures appears to be in part because they provide an effective way of heading off environmental dissent early in the life of a new development project, and; (3) Only a minority of projects are required to undergo EIA (about 3% in the first 5-6 years of NEPA's operation).[10] President Nixon at first opposed NEPA but relented when he realised the extent of public concern and the possibility that it could support the presidential aspirations of Senator Muskie. The act was signed into law in 1970.[11]

Seeing the need to take some initiative on the environment, Nixon created the Environment Protection Agency in 1970 to administer both NEPA and the growing body of Federal environmental legislation. The idea for a new agency originated from a presidential commission reviewing options for restructuring the Federal bureaucracy headed by Roy Ash. The Ash Council (as it became known) initially wanted to reorganise the whole Federal bureaucracy into four functional units, one of which would include a cabinet level department of environment. This concept was overturned by the combined resistance of the cabinet, because many members feared losing some of their powers, so a more narrowly defined agency was recommended instead. Nixon carefully crafted the responsibilities of the new agency to appease the conflicting demands of his favoured cabinet members.[12] As a result, several environmental functions that the EPA logically ought to have taken over were kept by other departments.

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[9] Robert V. Bartlett, "Ecological Reason in Administration: Environmental Impact Assessment & Administrative Theory", in Robert Paehlke and Douglas Torgerson (eds.), *Managing Leviathan: Environmental Politics and the Administrative State*, (Belhaven Press, London, 1990), pp. 81-96.
[10] This figure for the USA is cited in Ian Thomas, *Environmental Impact Assessment in Australia: Theory and Practice*, (The Federation Press, Sydney, 1996), p. 19.
[11] Dreyfus, Daniel & Helen Ingram, "The National Environmental Policy Act: A View of Intent and Practice", in *Enclosing the Environment: NEPA's Transformation of Conservation into Environmentalism*, ed. Channing Kury, (Natural Resources Journal: 25th Anniversary. Anthology, University of New Mexico: School of Law, Albuquerque, 1985), p. 49.
[12] Alfred A. Marcus, "EPA's Organizational Structure," *Law and Contemporary Problems*, (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency

Because of the special friendship that Secretary of Commerce Maurice Stans enjoyed with Nixon, several programs were organised into a National Oceanic and Atmospheric Administration in his department. Secretary of Agriculture Clifford Hardin managed to keep the Forest service in his department. Secretary of the Interior Walter Hickel, who had criticised the Nixon Administration for its handling of a war protest at Kent State University, lost the new agency as well as water-pollution control programs.[13]

By establishing the EPA as a separate agency, Nixon sought to consolidate administrative control of the new environmental laws, reassure favoured cabinet members that they would not lose authority, head off Muskie's use of the environment as a campaign issue, and shore up public support by appearing to do something positive.[14] The EPA was therefore a product of political deals made in response to growing environmental discourses.

Neither Nixon nor the Congress fully trusted the EPA. Half the Congress (working under a discourse that supported environmental regulation) did not trust the Nixon administration and were concerned that the agency might be "captured" by the large business interests that it was supposed to regulate.[15] The competing discourse of Nixon and the other half of Congress raised concerns about the possible negative economic impacts of imposing the extra costs believed to be carried by environmental regulation.[16] This had three consequences for the EPA. First, an enormous array of Congressional committees became involved in overseeing EPA operations.[17] Second, not all environmental responsibilities were handed over to the new agency. Third, Nixon set up several other agencies and offices to keep the power of EPA in check.

After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], pp. 18-21.

[13] Petulla, pp. 48-49.

[14] Dennis C. Williams, *The Guardian: EPA's Formative Years, 1970-1973*, (US EPA, Washington DC, September, 1993), p. 19; and Hoberg, p. 47.

[15] Over the last 3 decades the EPA as a whole has shown no sign of being captured by business. There have been incidents, however, where small groups of people within some offices have been influenced by the industry position on a particular issue. The actions of the pesticides division in the early 1970s and of some senior officers during the Reagan administration are cases in point. These incidents are discussed in chapter four.

[16] Lazarus, "The Neglected Question of Congressional Oversight of EPA ...", pp. 218-221.

[17] Lazarus, "The Neglected Question of Congressional Oversight of EPA ...", pp. 208-211.

In addition, at the same time that the President proposed the creation of EPA, he counterbalanced it with the creation of the National Oceanic and Atmospheric Administration ("NOAA") and National Industrial Pollution Control Council ("NIPCC") within the Department of Commerce. Commerce's pro-business perspective, the President believed, would minimise the chance of NOAA impeding economic activity within the coastal zone. NIPCC was made up of senior officials of major domestic corporations and trade associations and was designed to provide an authoritative source within the government on the adverse economic impact of pollution control. Working with OMB [the Office of Management and Budget that was charged with reviewing the economic impacts of all agencies and departments], NIPCC was intended to provide the President with an institutional mechanism for maintaining control over EPA.[18]

Nixon's distrust of the EPA was due to his conviction that Federal intervention leads to inefficiency, a discourse that persists today within the Republican party.[19] Nixon, supported by many business leaders, wanted to reverse the trend of Federal expansion that blossomed during both the 1930s "New Deal" and the Kennedy/Johnson administrations. He promoted "new federalism" as an alternative discourse that sought to "hand back" many regulatory responsibilities to the States. Being forced to set up a Federal EPA to take up the slack left by State governments was therefore against Nixon's broader agenda.[20]

The move to create a new agency was a grudging political concession to public environmental concerns, but the EPA was deliberately inserted into the context of a network of committees, agencies, departments and offices with varying degrees of responsibility for (and suspicion of) environmental regulation. It was expected to work together with the CEQ, the NIPCC, OMB, and NOAA, as well as the

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[18] Richard J. Lazarus, "The Tragedy of Distrust in the Implementation of Federal Environmental Law," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 318.

[19] John H. Cushman, "Adversaries Back the Current Rules Curbing Pollution," *New York Times,* (Monday, February 12, 1996), pp. 1 & C11

[20] Williams, pp. 4, 5, 7 &12. I put the term "hand back" in inverted commas since many environmental regulations and recognised responsibilities simply did not exist before World War II, so it would be difficult to hand back something that the States never had. It might be argued, however, that the States had the potential power to act even if they did not use it. The concept of new federalism was to arise again under Reagan, and had its counterpart in the policies of both the Fraser and Hawke governments in Australia.

Forestry Service that remained with the Department of the Interior, and the Army Corps of Engineers that retained responsibility for some major capital construction projects. Nixon and his allies in Congress hoped that creating EPA would be only a modest reorganisation.[21]

Box 3.1: EPA Containment from Nixon to Clinton

As Percival notes, every President since Nixon has created or maintained offices to supervise the EPA. Generally the focus has been on limiting any perceived negative economic impacts of environmental regulation.

> Each administration has had its own names for regulatory review and the analyses it has required of agencies. The Nixon Administration called its program Quality of Life ("QOL") review. ... While President Ford continued the QOL program, he also required agencies to prepare Inflation Impact Statements ("IISs") as part of the Administration's "Whip Inflation Now" ("WIN") program. ... In December 1976, the IISs were renamed Economic Impact Analyses ("EIAs") and bore that name until December 1977 when President Carter replaced them with Regulatory Analyses. Review under the Carter Administration's program was conducted by an interagency body called the Regulatory Analysis Review Group [RARG]. ... The Reagan Administration's program required agencies to perform Regulatory Impact Analyses reviewed by the Office of Management and Budget's Office of Information and Regulatory Affairs. The Bush Administration has continued this program, which now authorises appeals to the Council on Competitiveness rather than to the presidential task Force on Regulatory Relief.[22]

President Clinton has maintained the tradition of economic concern with a new internal EPA office designed to "cut red tape" and "reinvent" the agency.[23] Of all the offices and agencies mentioned, the Office of Management and Budget (OMB) has been the most prominent. In 1989 alone, OMB conducted 201 reviews of EPA proposed regulations.[24] Managing relations with OMB was something that William Ruckelshaus, who was the EPA's Administrator under both Nixon and Reagan, considered most challenging.[25]

These factors suggest that the origin of the EPA was less than ideal. It was brought into a world with a reluctant President and a hostile business sector. There was a pre-existing backlog of demands placed upon it by an increasingly active environmental movement and a concerned public. Congress was divided between courting public opinion and heeding business fears. Further, the agency

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[21] Richard J. Lazarus, "The Tragedy of Distrust in the Implementation of Federal Environmental Law," p. 316.

[22] Robert V. Percival, "Checks Without Balance: Executive Office Oversight of the Environmental Protection Agency," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 128, footnote 4.

[23] US EPA, *Managing for Better Environmental Results,* pp. 3-4.

[24] Percival, p. 163.

[25] Ruckelshaus, p. 14.

inherited an incomplete set of legislation that had accumulated piecemeal over several decades and was deliberately made to compete with other Federal agencies that had overlapping responsibilities. The structure and workings of the agency reflected these conflicting forces. It is interesting to speculate how different the agency might have been if Muskie had been President instead of Nixon. How much leeway would he have really had given the context of a confined political space defined by opposing discourses, competing institutions and the on-going attempts to contain the EPA?

In order to determine the rationality or governmentality of the agency, three questions need to be answered. First, what goals were set for the agency? Second, how was the agency structured to meet these goals? Third, what routines were set up for the agency to follow in fulfilling its theoretical function? Underlying all of these questions is a need to explain the history of the development of the goals, structure and function, and the reasons why some options were adopted while others were ignored. This will help explain the context of power.

2) Initial Goals

The reluctance to centralise environmental intervention, together with the lack of understanding of the extent of environmental problems, worked to restrict the context of the agency's mission. Initially the EPA was only directed to consider environmental problems that affected human health (such as urban air quality and freshwater pollution). These problems were seen as a consequence of lax State and Local government regulation and it was assumed that they could be quickly remedied by decisive Federal action. This discourse led to a massive oversimplification and underestimation of environmental issues. Nixon's message to Congress regarding his reorganisation plan assumed that determining the causes and extent of environmental problems would be relatively straightforward.

> A far more effective approach to pollution control would:
> -Identify pollutants.
> -Trace them through the entire ecological chain, observing and recording changes in form as they occur.
> -Determine the total exposure of man and his environment.

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-Examine interactions among forms of pollution.
-Identify where the ecological chain interdiction would be most appropriate.[26]

Despite the rhetoric about the environment, the EPA's main mission was framed in terms of preventing any negative impacts of pollution on human health. The belief in the simplicity of the problem led to an overly optimistic view of what the EPA could achieve. This is apparent in the range of tasks delegated to the EPA by Nixon.

> The principal roles and functions of the EPA would include:
> -The establishment and enforcement of environmental protection standards consistent with national environmental goals.
> -The conduct of research on the adverse effects of pollution and on methods and equipment for controlling it, the gathering of information on pollution, and the use of this information in strengthening environmental protection programs and recommending policy changes.
> -Assisting others, through grants, technical assistance and other means in arresting pollution of the environment.
> -Assisting the Council on Environmental Quality in developing and recommending to the President new policies for the protection of the environment.
>
> Essentially the Council [on Environmental Quality] is a top-level advisory group (which might be compared with the Council of Economic Advisers), while the EPA would be an operating "line" organisation.
>
> The EPA would be charged with protecting the environment by abating pollution. In short, the Council focuses on what our broad policies in the environmental field should be; the EPA would focus on setting and enforcing pollution control standards.[27]

Although Nixon eventually conceded the need for Federal action, his commitment to "new federalism" led him to emphasise that the EPA should take joint action with the States where possible. He also believed that many responsibilities could

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[26] Richard Nixon, "Special Message to the Congress About Reorganisation Plans to Establish the Environmental Protection Agency and the National Oceanic and Atmospheric Administration", in *Public Papers of the Presidents of the United States: Richard Nixon, 1970,* (Item No. 215, National Archives and Record Service, Washington, July 9, 1971), p. 579.

[27] Nixon, pp. 582-583. There may be some parallel here between the function supposed to be filled by the CEQ and ANZECC. Both are expected to direct research, set goals and advise the government. The main difference is that ANZECC is a council of environment ministers from two countries, while CEQ is a small council of technical experts.

be handed back to the States in future, with the EPA becoming more of a support mechanism for State authorities.[28]

William Ruckelshaus, the first head of the EPA, confirms many of the above observations. In an interview published recently by the EPA he suggests that Nixon was reluctant to act on the environment, but was forced to by the electoral weight of public opinion. Ruckelshaus had worked with the Indiana State Board of Health and Deputy Attorney General's Office on reducing local pollution emissions during the early 1960s. Most of his work focused on gross violations of existing State emission and effluent laws. He became convinced of the need for Federal action because he believed that many southern states were deliberately neglecting environment protection in order to encourage industrial development. He also pointed out that at the time many people underestimated the size and complexity of environmental problems. [29]

Overall, while the stated goals of the EPA appeared ambitious, this reflects the lack of understanding about the scale of environmental problems rather than a broad delegation of powers by Nixon. Further, Nixon was careful to limit the agency's responsibilities by getting other organisations to carry much of the environmental workload.

3) Constructing the Agency

In 1970 the EPA began as an agglomeration of responsibilities and staff transferred from several existing branches of the Federal bureaucracy. The result was some 5,000 people of disparate expertise operating under a variety of discourses.[30]

The Federal Water Quality Administration was transferred from the Department of the Interior (DOI), although responsibility for fish, wildlife and forestry

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[28] Nixon, p. 581.
[29] William D. Ruckelshaus, *US. EPA Oral History Interview - 1: William D. Ruckelshaus*, (US EPA History Program, Washington DC, January 1993), pp. 11 & 5-7.
[30] Williams, p. 3.

remained with DOI. Pesticide research and standard setting was taken from the Food and Drug Administration (FDA), although FDA retained the power to set and police residual pesticide levels in food. Pesticide Registration was transferred directly from the Department of Agriculture, but the department kept the ability to research into the effectiveness of pesticides. From the Department of Health, Education and Welfare (HEW) came the National Air Pollution Administration, Bureau of Water Hygiene, Bureau of Solid Waste Management, Bureau of Radiological Health, and Pesticide Tolerances and Research. Federal Radiation Control, the Environmental Radiation Standards section of the Atomic Energy Commission (AEC), and the Environmental Systems Studies section of the CEQ all came from the Executive Office of the President. The CEQ retained its ability to conduct research into environmental quality and the AEC kept the power to set standards and issue licenses for the nuclear industry.[31]

There was considerable debate about how to integrate the variety of responsibilities and personnel into one coherent agency. Three discourses emerged with different political objectives. The first proposed that the agency be organised along functional lines in accordance with the governmentality of the "rational" state. This was promoted by Douglas Costle (then at CEQ and later to become EPA Administrator) and Alain Enthoven (a Defence Department organisational analyst).

> The final organisation would give priority to five functions: (1) planning and management; (2) standards and compliance; (3) regional programs; (4) national programs; and (5) research and monitoring. It would encourage a systems approach to environmental management and increase executive control by eliminating old organisational identities.[32]

The second discourse proposed a network of offices organised around specific media (such as air, water, solid waste etc.). The argument for this approach was that existing legislation was media based and the offices transferred from other departments were used to working along these lines. Ruckelshaus, supported this approach because he was concerned that spending too much time trying to create

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[31] Williams, p. 6., and Nixon, pp. 579-581.
[32] Alfred Marcus, p. 26.

an ideal structure would slow down the agency operations in the first few years and it might require a lot of staff retraining.[33]

The third discourse encouraged the agency to be decentralised into regional offices which would work closely with State and Local authorities. This was driven by Nixon, among others, because it suited the "new federalism" agenda.

The structure adopted in December 1970 was a compromise among these three competing discourses. Beneath the administrator were three levels: the first organised along functional lines; the second along media-specific lines; and the third consisted of ten regional offices run by separate administrators. The whole of the US was split up into 10 regions to be administered by these offices. Most regions consist of a few states put together on the basis of geographic proximity and similarity of industrial development. Regional offices were expected to work closely with State and Local governments in their designated area.[34] The functional level consisted of three offices led by assistant administrators for: Planning and Management; Standards, Enforcement, and General Council; and Research and Monitoring. There were five commissioner led offices at the media level: Water Quality; Air Pollution Control, Pesticides; Radiation; and Solid Waste.[35]

There was an attempt to integrate the first and second levels in April 1971. This led to five offices under assistant administrators: Planning and Management (including administration, auditing and resource management); Enforcement and General Council; Media Programs (air and water); Categorical Programs (pesticides, radiation and solid waste); and Research and Monitoring.[36] There were plans for a third stage reorganisation to completely integrate the agency along functional lines. This never occurred and the EPA structure was soon

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[33] Williams, p. 9, and Alfred Marcus, p.23.
[34] See Figure 2.2 map of EPA regions in National Academy of Public Administration [NAPA],*Setting Priorities, Getting Results: A New Direction for EPA,* (Report to Congress, Washington, D. C., April 1995), p. 18.
[35] See organisational chart in Williams, Figure 2, p. 7.
[36] Williams, Figure 3, pp. 8-9.

separated back into eleven main offices. This structure that remained relatively unchanged until three extra offices were added in 1997 (see Box 3.2)

Box 3.2: The Structure of the EPA

The Administrator

The current structure is headed by an Administrator and a Deputy Administrator supported by three Associate Administrators for: Regional Operations and State/Local Relations; Communications, Education and Public Affairs; and Congressional and Legislative Affairs. There are also nine cooperative bodies with which the Administrator confers. These are the: Office of Administrative Law Judges; Office of Civil Rights; Office of Small and Disadvantaged Business Utilisation; Science Advisory Board; Environmental Appeals Board; Office of Co-operative Environmental Management; Executive Support Office; Executive Secretariat; and Pollution Prevention Policy Staff. The Administrator has the ultimate responsibility for answering to the President and the Congress.[37]

Head Office

Answering to the Administrator and Deputy Administrator are nine Assistant Administrators who head up the offices of:[38]

- Administration and Resource Management (responsible for managing the staff, funding and facilities of the agency);
- Enforcement and Compliance Assurance (that pursues policing and enforcement activities for all the media offices);
- Policy, Planning and Evaluation (which produces the agency's strategic plans);
- International Activities (that promotes US concerns in international forums);
- Research and Development (in both production technology and baseline ecological research);
- Air and Radiation (monitoring and standard setting);
- Prevention, Pesticides and Toxic Substances (regulation and control);
- Water (all water pollution and quality related programs); and
- Solid Waste and Emergency Response (which is responsible for contaminated site clean up).

There are also the offices of:

- General Counsel (which provides legal advice and advocacy to the agency); and
- Inspector General (which audits EPA programs)

The nine assistant administrators and the general counsel constitute a steering committee that coordinate the agencies actions.[39]

In February of 1997, the creation of three new offices were announced:[40]

- Children's Health Protection (headed by a Senior Adviser to the Administrator);
- Reinvention (headed by an Associate Administrator to deal with projects such as the Common Sense Initiative and Project XL on an "industry-by-industry basis"); and
- Centre for Environmental Information and Statistics (to be opened on January 1, 1998).

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[37] NAPA Report, Figure 2.1, p. 17.

[38] NAPA Report, p. 17.

[39] Thomas O. McGarity, "The Internal Structure of EPA Rulemaking," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 69.

[40] US EPA, *Browner Announces New EPA Offices to Support Children's Health, Regulatory Reinvention and Right to Know,* [http://www.epa.gov/PressReleases/1997/March/Day-11/pr-1031.html], February 27, 1997.

The Regional Offices

There is a broad network of EPA branches that stretch across the country, including:[41]

* Ten regional offices whose structure mirrors that of the head office and are led by Regional Administrators. "The primary functions of the regional offices are to oversee state and federal permitting processes, approve state implementation plans and delegations, conduct monitoring and enforcement efforts, and serve as representatives of the agency to the general citizenry."[42] They also oversee Superfund sites, provide technical assistance to the states and manage local grants and contracts;[43] and,
* There are also a number of laboratories and field offices concerned with specific investigations and administration issues.[44]

The structure of the EPA is complex but understandable given the competing discourses and political bargaining from which the agency emerged. There are attempts to coordinate the various offices through the steering committee and through various rule making procedures (outlined below).

4) Operating Routines

Under the US system of Federal government, environmental regulation is a complex interaction of different parts of the state and civil society. The Congress legislates to set broad goals (such as aiming for "swimmable rivers" under the Clean Water Act) and appropriates money from the Federal budget to achieve these goals. The President creates a cabinet by selecting people to head up each Federal department and forms the administration with this cabinet (the EPA Administrator is not a member of cabinet). The administration then decides how to organise the bureaucracy around the goals set by Congress (as in Nixon's reorganisation plan number 3 that created the EPA).

In the EPA, the Administrator, Deputy Administrator, all nine Assistant Administrators, and the ten Regional Administrators are selected by the President and confirmed by Congress.[45] The agency then has the responsibility of developing strategies, setting up programs, and promulgating and enforcing regulations to meet the goals set by Congress.

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[41] NAPA Report, p. 17.

[42] McGarity, p. 69.

[43] NAPA Report, pp. 78-79.

[44] United States Environmental Protection Agency, *Public Information Tools*, [http://www.epa.gov/docs], May, 1995, p. 7; and NAPA Report, p.17.

In terms of supervision, there are three forms of review for the EPA: external administrative offices (such as the Office of Management and Budget, the NIPCC and the CEQ); Congressional committees and the General Accounting Office; and the legal system (that allows business, the environmental movement and community interest groups to either challenge the validity of regulations or force the EPA to act on a legislative mandate).

The whole process includes a substantial feedback loop so that initiatives taken by the agency that Congress likes can later be enshrined in legislation (as happened with the pollution prevention programs). Alternatively, if the Congress rejects some EPA action, it may be legislated against (such as setting deadlines to overcome the delay in issuing regulations under the RCRA). Over the last twenty five years the Congress has become more involved in the management of the EPA and legislation (with the exception of the Pollution Prevention Act) has become more specific about methods, standards and deadlines.

Within the EPA, there is an exhaustive routine for promulgating regulations that provides fine examples of governmentality, the role of epistemic communities, and the power of institutional discourses. McGarity points out that EPA regulations require such a broad range of expertise that it necessitates the cooperative effort of several groups of specialists. "The expertise upon which the rulemaking edifice rests is thus an "institutional expertise" that transcends the knowledge and experience of any individual person or office within the agency."[46] He identifies five perspectives (or for our purposes, professional discourses) needed for environmental regulatory decision making.

> Each participant brings to the process more than just pure expertise on the limited issues to which that person's expertise is relevant. Along with the expertise comes an entire professional *weltanschauung* that incorporates attitudes and biases ranging far beyond specialised knowledge of particular facts. Thus, a decision that draws upon different kinds of expertise will necessarily reflect a mix of different perspectives. In the

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[45] McGarity, pp. 65-66 & 69.
[46] McGarity, p. 61.

context of EPA, the mix of perspectives includes: (1) the scientific perspective (both pure and applied), (2) the engineering perspective, (3) the management perspective, (4) the enforcement perspective, (5) the "economic-analytical" perspective, (6) the legal perspective, and (7) the political perspective.[47]

In order to blend this expertise into a coherent whole, the EPA has developed some quite detailed rule-making routines. First, the particular program office responsible for a piece of legislation will determine that a new rule is needed. Then it will submit a proposal for a new rule to the steering committee. If the action is approved, a project officer within the program office will convene and lead a working group made up of representatives from all offices that will be affected or have some relevant expertise in the area. The working party reviews and selects the most appropriate regulatory options and oversees the drafting of the new rule by the relevant program office.

A package is then put together that consists of the draft rule, documentation outlining the reasons for the selection of the particular type of regulation, the alternatives considered, and an impact analysis of the rule. This package is submitted to the steering committee for a "red border review", in which the heads of all offices have a chance to comment and suggest modifications. There is then a period for public and other agencies to comment before being sent back to the steering committee for alterations. The revised rule is then resubmitted to the steering committee for final "red border review". Once through this process the EPA administrator has final say whether to promulgate the new rule or send it back for further review. [48]

In theory, this process is designed to ensure that all relevant offices have some influence over the creation of new rules. It is also supposed to allow for the creative melding of several different types of expertise. In practice, the procedure is time consuming and requires a lot of resources. As a result, it has been set aside

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[47] McGarity, p. 61. These perspectives are similar to, but not identical with the dimensions of development highlighted in chapter 1. Although McGarity does not talk about development, perspectives 1 & 2 are akin to the technical dimension, 5 to the economic, 4 is related to the social and 6 & 7 to the political. The "pure" scientific part of perspective 1 might also relate to the ecological dimension.

on some occasions to speed up the promulgation of regulations. For example, the development of hazardous waste regulations in 1979-80 short-circuited the process to speed up the movement from the working party to the administrator.[49]

The workings of the EPA are complicated by several factors. First, there is the need to satisfy oversight by Congress, confer with other agencies, and produce regulations that will stand up to legal challenge. Second, within the EPA is a network of different offices and functions built on different discourses that require complex interactions in order to get the agency to act as a whole. Finally, environmental problems are multi-faceted by nature, and require the EPA to be able to meld a variety of expertise through a complex rule-making routine.

5) The Theoretical Power of the EPA

It is an extremely difficult task to assess the power of any organisation in a society as complex as the USA. The trans-structural approach outlined in chapter two defines power as the capacity to affect the flow of resources (capital, revenue, labour, knowledge and natural) through the social web of power in order to serve a perceived interest or ideal. This suggests two significant factors that affect the successful deployment of power: the capacity to alter perceptions (through discourses and information) and the context of resistance caused by the degree of permeability, malleability and orientation of social structures which resources must flow around and through. Both these elements have hidden and visible parts, so the hidden part must somehow be deduced from the visible.

Applying these ideas to the EPA, there are three visible indicators of its theoretical capacity to redirect resources. First, the legislative powers and level of autonomy that has been granted to the agency. Second, the financial and staffing resources allocated to its operation. Third, the effect of the EPA's efforts may be indicated, at least in part, by the redirection of capital into investments targeted at environmental protection. The specific operation and limitations of the EPA's power will be considered in more detail in chapter four, which should also reveal

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[48] McGarity, pp. 71-90.

the hidden context of power, particularly the resistance encountered. An analysis of the redirection of resource flows will be undertaken in chapter five.

The Accumulation of Legislation and Programs

The surge of new environmental legislation in the 1960s continued into the 1970s. As each new law was passed, the EPA was expected to rapidly develop and enforce appropriate regulations. This process continued into the 1980s and new mechanisms for regulation were added that attempted to be more flexible than simple command and control measures (see table 3.1 at the end of this chapter for a chronology of the EPA). Currently the EPA has responsibility for administering ten major pieces of legislation (see Box 3.3).

Box 3.3: Major Legislation Administered by the EPA[50]

- The Clean Air Act;
- The Clean Water Act;
- The Safe Drinking Water Act;
- The Comprehensive Environmental response, Compensation, and Liability Act (that deals with the clean up of contaminated sites and is also referred to as "Superfund");
- The Resource Conservation and Recovery Act (dealing with solid waste);
- The Federal Insecticide, Fungicide and Rodenticide Act;
- The Toxic Substances Control Act;
- The Pollution Prevention Act;
- The Marine Protection, Research and Sanctuaries Act; and
- The Uranium Mill Tailings Radiation Control Act.

In 1970 Congress passed a new Clean Air Act that gave the EPA power to set national ambient air quality standards that authorities in all cities, counties and States were expected to take action to meet. The standards were primarily designed to protect human health. Different standards were set for three designated kinds of air-sheds, based on the development activities which they contained: national parks; general use; or industrial areas. The standards dealt

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[49] McGarity, pp. 95-96.

[50] United States Environmental Protection Agency, *Public Information Tools*, p. 5. The Marine Protection, Research and Sanctuaries Act and the Uranium Mill Tailings Radiation Control Act will not be considered here. The bread and butter issues for the EPA have turned out to be legislation directed at air pollution, water quality, solid waste, pesticides, contaminated sites and hazardous chemicals.

with a handful of chemicals and particulate matter. The 1970 act also transferred the right to set emission standards for vehicles to the EPA.

The act was amended in 1977 to prevent areas which were better than the standard from letting the air quality decline (this was known as the prevention of significant deterioration) and to extend the deadline for vehicle compliance.[51] The Act was further amended in 1982, 1987, and 1990. The 1982 amendments introduced tradeable permits for lead in petrol that were progressively withdrawn by 1986. There was also a requirement for the implementation of best available control technology in stationary emission sources, such as power plants. The 1990 amendments created tradeable permits for sulphur dioxide emissions that were introduced in 1993.[52] The concept of using air emission "bubbles" was adopted in 1981. This allowed total emission levels for a whole plant to be set, without specifying which part of the plant had to comply with which emissions. This system permitted trade-offs within the plant, so that emissions reduced in one area could offset emissions from another.[53]

A new Federal Water Pollution Control Act was passed in 1972 in response to the Nader report. This set the EPA the goal of making all waterways in the US "fishable" and "swimmable." It also handed over responsibility for issuing emission permits to the EPA and put it in charge of the waste treatment plant construction program. The act was amended and became the Clean Water Act in 1977, which set a requirement for best practicable technology to be adopted in waste water treatment. In 1987 the act was amended again and included a substantial increase in funding for new waste water treatment facilities.[54]

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[51] Portney, "Air Pollution Policy," pp. 31-33.
[52] Portney, "Air Pollution Policy," p. 38; Bureau of Industry Economics, *Research Report 42: Environmental Regulation: The Economics of Tradeable Permits - A Survey of Theory and Practice*, (Australian Government Publishing Service, Canberra, 1992), pp. 52-53.
[53] US Government, "Environmental Protection Agency", in *Federal Government Directory*, (Washington DC, 1991), p. 82; Marc Landy, Marc Roberts & Stephen Thomas, *The Environmental Protection Agency: Asking the wrong Questions - from Nixon to Clinton*, (2nd. Ed., Oxford University Press, New York, 1994), pp. 214 & 220.
[54] Freeman, pp. 97-103, 107, & 104.

Standards for the chemical and bacterial content of water supplies were set under the 1974 Safe Drinking Water Act.[55]

In terms of solid and hazardous waste, the 1965 Solid Waste Disposal Act was replaced by the 1976 Resource Conservation and Recovery Act. This gave the EPA broad powers to regulate hazardous substances from cradle to grave, and required producers, users and waste disposal companies to keep detailed records of where these chemicals went. In 1980 abandoned waste sites were included but the act was amended in 1984 so as to avoid conflict with Superfund legislation. The 1990 amendments reduced the number of exemptions originally granted.[56]

In 1980 Congress passed the Comprehensive Environmental Response, Liability and Compensation Act (CERCLA) commonly known as Superfund. Under this act, the producers of designated hazardous chemicals were required to pay a levy into a fund that the EPA would then use to identify and clean up sites contaminated with hazardous waste. The EPA was given the power to: force those responsible for the site to undertake a clean up; take necessary remedial action and recover costs from the responsible parties (site owners, originators of the waste, or disposal companies); or enter sites and take emergency action.[57] Amendments to the act in 1986 included community right to know provisions (known as SARA: Superfund Amendment and Reauthorization Act) that compelled EPA to inform the public about the presence of hazardous waste sites and the remedial action being undertaken.[58]

Two main acts governed hazardous chemicals. The Toxic Substances Control Act of 1976, gave the EPA the authority to identify, evaluate and regulate the full life cycle of chemicals considered hazardous. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) originated in 1947 and was amended in 1964, 1972, 1978 and 1988. In 1970 it was transferred from the Department of Agriculture to

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[55] US Government, pp. 103-104.
[56] Roger C. Dower, "Hazardous Waste", in *Public Policies for Environmental Protection*, Paul Portney ed., (Resources for the Future, Washington, 1990), pp. 161-165.
[57] Dower, p. 169.
[58] US EPA, *Guide to Environmental Issues*, (Office of Solid Waste and Emergency Response, Washington DC, April 22, 1995), p. 25.

the EPA. The act allows for the testing, regulation and banning of any pesticides or ingredient.[59]

A more innovative approach to toxic chemical regulation was the Toxics Release Inventory, which was created in 1987 under the community right to know provisions of the Superfund Amendments. This program required companies to release information about their use and disposal of 329 specified toxic chemicals (if they use more than 75,000 pounds [33 tonnes] per annum in 1987, reducing to 10,000 pounds [4.5 tonnes] in 1989). This information is then made public. The objective is to make companies audit their chemical use/releases, even if they are legal, and generate public pressure to push firms to clean up their act. It is assumed that firms would be concerned enough about their public image to change their ways.[60] In 1994, Carol Browner announced that the number of specified toxic substances would be increased to over 600.[61]

Throughout the 1980s and 1990s there has been a general shift in the governmentality of Federal environmental intervention away from piecemeal command and control legislation towards economic instruments such as tradeable emission permits and cooperative programs that seek to prevent environmental damage through cleaner technology. This change coincided with the rise of now predominant economic rationalist discourses. The 1990 Pollution Prevention Act is an example of this approach. The act is not as detailed as previous legislation and focuses on broader goals rather than specific requirements. The EPA was required to create a strategy to "promote source reduction" of pollution.[62] The aim was to help firms change their productive technology so as to produce less waste.

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[59] Shapiro, pp. 207-212.

[60] NAPA Report, p. 94, and Robert Gottlieb, Maureen Smith, Julie Roque, and Pamela Yates, "New Approaches to Toxics: Production Design, Right-to-Know, and Definition Debates," in Gottlieb (et. al.) ed., *Reducing Toxics: A New Approach to Policy and Industrial decision Making,* (Island Press, Washington, D. C., 1995), pp. 131-139.

[61] Carol Browner, *Press Briefing by Hazel O'Leary, Secretary of Energy, Bruce Babbitt, Secretary of the Interior, Carol Browner, Administrator of EPA and Katie McGinty, Director of the Office of Environmental Policy,* (White House Office of the Press Secretary, April 21, 1994), pp. 4-5.

[62] Nancy Firestone [then an associate deputy administrator of the EPA], "The Federal Perspective" in *Responding to Environmental Challenge: A Discussion Among People from Industry, Government and Environmental Groups,* (The American Petroleum Industry Conference on Health and Environment, Washington DC, October 1990), p. 5.

The programs were mainly voluntary and responsibility for them was given to the office of pollution prevention set up by Administrator Reilly in 1988.[63]

Several new programs were adopted under the pollution prevention policy. One is the Partnership for Environmental Technology Education (PETE). The objective of this program is to work with industry to train employees in relevant environmental skills, particularly those working in pollution control. The occupations being promoted include: "hazmat [hazardous materials] technicians, treatment plant operators, industrial hygienists, health and safety staff, sanitarians, inspectors."[64] The aim is to produce a work force that will be able to reduce pollution from a range of diffuse industrial sources which are normally difficult to police. It is also hoped that these workers will be a kind of vanguard that influences both corporate culture and consumer behaviour.[65] The scheme seeks to promote five main skills: (1) a knowledge of Federal regulatory requirements; (2) an ability to operate pollution control infrastructure; (3) a working knowledge of pollution control technology; (4) an ability to keep appropriate records for community right to know legislation; and (5) an ability to come up with cleaner production innovations on the factory floor.[66]

Another new program is the promotion of Eco-Industrial Parks (EIPs). This scheme attempts to integrate the operations of several different types of firms on a single site. Each plant shares the costs of energy, transport and water resources while using each others products and wastes as inputs. Originally the idea came from a Danish industrial park that set itself up along these lines to reduce production costs in the late 1980s. Beneficial environmental effects, in terms of reduced pollution, were noted later when the success of the project led to a study of how it worked. The interdependent relationships of the different plants led to the term "Eco-Industrial Park" because they resembled an ecosystem. Over the last few years several US consulting companies have started to promote these

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[63] McGarity, p. 85.

[64] John Wise, "Partnership for Environmental Technology Education", (Paper presented to the Second Semi-Annual Resource Instructor Conference, Las Vegas, [http://www.epa.gov/docs], February 21, 1992, p. 1.

[65] Wise, p. 3.

[66] Wise, pp. 4-5.

sorts of developments. The EPA came on board recently and is currently developing pilot projects, an EIP handbook and other support mechanisms.[67]

There are many other voluntary programs under the pollution prevention policy. Most of them are designed to demonstrate the cost savings of more efficient resource use and play upon a firm's desire for a good environmental image. The 33/50 program encouraged companies to make a public commitment to reducing their emission of 17 hazardous chemicals by 33% in 1992 and 50% by 1995. The first goal was achieved in 1991, and a 40% reduction had been achieved by the 1,200 participants by 1992. Green Lights was a program that encouraged firms to save money by installing low energy lighting. The EPA claims that it has reduced energy demand by 95 million kilowatts annually (a saving of about US $9.4 million). The Energy Star programs encourage energy conservation in the design of computers and commercial buildings. Water conservation is encouraged by getting hotels to install water saving fixtures and appliances in return for accreditation under the Wave program. Businesses are also given help in reducing solid waste through the Waste-Wise program.[68]

While there are some promising signs for 33/50 and Green Lights, the overall impact of most voluntary schemes is difficult to assess because they are so new and diffuse. The PETE and EIP programs are also hard to assess because they have long lead times before any effects are likely to become evident. Workers who begin training under PETE today may take several years before they attain supervisory positions that allow them to make a significant impact. Even if a mass construction program for EIPs were begun today, it would take decades to replace older, more polluting plants.

The point to note here is simply that the EPA has diversified its operations beyond traditional command and control measures and has started programs that will have long term impacts. In 1995 the EPA responded to renewed

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[67] Ernest Lowe, seminar at Haas Business School, University of California (Berkeley), February 21, 1996. Ernest Lowe, "Industrial Ecology: A Context for Design and Decision," in Joseph Fiksel (ed) *Design for Environment: Creating Eco-Efficient Products and Processes,* (McGraw-Hill, New York, 1996), pp. 459-465.

Congressional scrutiny and criticism with a plan to "reinvent" environmental regulation. A recent review of the EPA's progress emphasised the success of cooperative programs such as Project XL, the Common Sense Initiative, and partnerships that grant firms more flexibility in their attempts to move beyond compliance.[69]

In summary, the EPA has grown to take on substantial visible responsibility with regards to environmental regulation and intervention. Many of these powers were added piecemeal and have been substantially revised over the last 27 years (see table 3.1 at the end of this chapter for a summarised administrative history). The EPA now has over 670 pages of statutes to administer and had promulgated more than 9,000 regulations.[70] Generally, there is a strong media or issue specific focus to most legislation, with special attention for air and water pollution, solid waste, contaminated sites, and hazardous chemicals.

Originally, legislation was designed to use command and control measures, such as setting and policing standards or permits. There were also technology forcing regulations in both clean air and water acts that required best available or best practicable technology to be used to reduce emissions. The Pollution Prevention Act is an exception to this approach. The EPA has diversified its regulatory approaches and can now: force industry to pay for contaminated site clean ups; step in and take emergency remedial action where necessary; negotiate air emission bubbles with plants; issue tradeable emission permits; release information to the public about polluting firms; and promote a range of voluntary pollution reduction programs and partnerships.

Resource Appropriation and the EPA

The routines that shape the deployment of financial resources within the EPA are complex. Putting together the budget involves a process that runs from April to

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[68] US EPA, *Guide to Environmental Issues,* pp. 4-7; & NAPA report, p. 96.

[69] US EPA, *Managing for Better Environmental Results,* [http://www.epa.gov/reinvent/annual], May 5, 1997.

[70] Ross Ettlin, "Facts to Reflect On", *EPA Journal,* (September/October 1990), Vol. 16, No. 5, p. 29.

October. The first step is a meeting between the Administrator, Deputy Administrator, all nine Assistant Administrators, all three Associate Administrators and the ten Regional Administrators, their staff, their deputies, and the chief of staff. This meeting sets broad priorities on the basis of the draft strategic plan. A subgroup of eight of these administrators form a budget options work (BOW) group to investigate the "big" allocation options over ten weeks.

The Budget Division then prepared analyses of the options and the BOW prepared a "straw" budget on the basis of these analyses for a "Summer Budget Forum" which involved 90 of the senior and key decision making staff of the EPA. The final outcome was reviewed by the budget Division and then passed on to the OMB. The OMB then recommends changes to the EPA Administrator and the amended budget is then sent to the President for approval. Several congressional appropriations committees then revise the proposed budget, earmarks how specific funds should be spent, and asks the EPA to develop a detailed operating plan. The whole package is then supposed to pass as part of the budget bills of Congress by October. [71] The final review is the President's decision whether to veto or accept the budget bill. Any veto can be overturned by a two thirds majority vote in both houses of Congress.

This routine is slow and cumbersome largely because of the opportunities it generates for the discourses of different political institutions to clash during the process. Nowhere was this more evident than when Federal agencies were brought to a standstill by a deadlock between Congress and President Clinton over the 1995/1996 budget that lasted several months.

In total resource terms the fortunes of the EPA have fluctuated over the last 27 years in sympathy with variations in the predominant political discourses of the President and/or Congress. Initially the EPA started with about 5,500 staff transferred from other departments and a budget of US $1.3 billion.[72] Within two years Congress had funded an expansion to 7,000 employees and a budget of US

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[71] Based on the analysis of the 1995 Budget process in NAPA Report, pp. 147-152.
[72] Ross Ettlin, p. 29.

$3.3 billion. This grew to 12,000 staff and US $5 billion in 1980 with the blessing of President Carter. Under Reagan's version of new federalism, from 1980 to 1989 the budget fell to US $4.8 billion, which constituted a real reduction of 15%.[73] The EPA recovered somewhat from the Bush to Clinton administrations and now has over 19,000 employees and an annual budget of US $7 billion.[74] Despite the overall growth, the EPA's budget remains only 0.5% of the Federal budget of US $1,461 billion and is dwarfed by the country's total GDP of US $7,247 billion.[75]

Within the agency the distribution of resources has also varied over time. In 1981 only 15% of EPA's budget was directed to the regional offices. By 1991 this had grown to 43%.[76] The largest single expenditure over the twenty five years has consistently been water infrastructure construction programs. In 1995, these programs constituted 36% (or about $2.5 billion) of the EPA's budget. The second largest item is Superfund, which constituted 20% (about US $1.4 billion) in 1995. Just over US $1 billion was spent on EPA management and administration in the same year.[77]

Conclusion

The US EPA emerged in the context of a compromise between conflicting political institutions and discourses as a response to a rapidly developing set of environmental issues. If the stated goals of the EPA appear bold this is only due to the lack of understanding about the extent of the problems at the time of its creation. The EPA was regarded by its creator, President Nixon, as a simple bureaucratic reorganisation and was deliberately set within a network of administrative structures that could restrain its activities. Despite the resistance of its opponents, the agency's theoretical powers progressively increased and are reflected in its expanded structure, a range of new programs, and responsibility

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[73] Paul Portney, "EPA and the Evolution of Federal Regulation", in *Public Policies for Environmental Protection*, p. 10.

[74] NAPA Report, pp. 16 & 19.

[75] Central Intelligence Agency, *World Factbook 1996*, [http://www.odci.gov/cia/publications/nsolo/factbook/us.htm]. June 4, 1997.

[76] Ettlin, p.29.

[77] NAPA, pp. 18-20.

for an increased body of environmental legislation. The total resources dedicated to the agency have fluctuated and although substantial, they remain only a small fraction of Federal budget expenditures. An assessment of the effectiveness of the agency's actual power will require a more detailed look at improvements in environmental quality and the nature of industry's response to regulation. These will be dealt with in the next chapter.

Table 3.1: A Chronology of the US EPA

Year	EPA Administrator	President	Key Legislation	Key Regulations & Programs
1970	William Ruckelshaus	Richard Nixon	NEPA, Clean Air Act (CAA)	
1971	William Ruckelshaus	Richard Nixon		CAA national ambient air quality standards set
1972	William Ruckelshaus	Richard Nixon	Water Pollution Control Act & amendments to Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)	
1973	William Ruckelshaus Russell Train	Richard Nixon		
1974	Russell Train	Richard Nixon Gerald Ford	Safe Drinking Water Act (SDWA)	
1975	Russell Train	Gerald Ford		
1976	Russell Train	Gerald Ford	Resource Conservation & Recovery Act (RCRA) & Toxic Substances Control Act (TSCA)	
1977	Douglas Costle	Jimmy Carter	CAA amendments & Clean Water Act (CWA)	
1978	Douglas Costle	Jimmy Carter	FIFRA amended	
1979	Douglas Costle	Jimmy Carter		
1980	Douglas Costle	Jimmy Carter	RCRA amendments & Superfund	CAA Tradeable permits for Lead in petrol introduced
1981	Anne Burford	Ronald Reagan		CAA Bubbles introduced
1982	Anne Burford	Ronald Reagan	CAA amendments	
1983	Anne Burford William Ruckelshaus	Ronald Reagan		
1984	William Ruckelshaus	Ronald Reagan	RCRA amendments	
1985	William Ruckelshaus Lee Thomas	Ronald Reagan		
1986	Lee Thomas	Ronald Reagan	Superfund SARA amendments	CAA Tradeable permits for Lead in petrol removed
1987	Lee Thomas	Ronald Reagan	CAA & CWA Amendments	Toxics Release Inventory began
1988	Lee Thomas	Ronald Reagan	FIFRA amended	EPA Pollution Prevention policy; 33/50 program

Year	EPA Administrator	President	Key Legislation	Key Regulations & Programs
1989	William Reilly	George Bush		
1990	William Reilly	George Bush	CAA Amendments & Pollution Prevention Act	
1991	William Reilly	George Bush		Green Lights
1992	William Reilly	George Bush		Partnership for Environmental Technology Education; Energy Star program
1993	Carol Browner	Bill Clinton		CAA SO_2 tradeable permits issued; Waste-Wise program; PCSD formed; EPA report to Congress on Sustainable Development.
1994	Carol Browner	Bill Clinton		Wave program
1995	Carol Browner	Bill Clinton	Republican attempts to amend Endangered Species and SDWA	Common Sense Initiative; Eco-Industrial Park program
1996	Carol Browner	Bill Clinton	Deadlock over budget bills and EPA funding.	PCSD report released.
1997	Carol Browner	Bill Clinton		Restructuring, 3 new offices.
1998	Carol Browner	Bill Clinton		
1999	Carol Browner	Bill Clinton		Participation in the program of "National Town meetings for Sustainable Development"

Chapter Four

The US EPA in Practice

Introduction

This chapter considers what the US EPA was actually able to achieve during the last three decades in the context of both internal and external resistance. Section one presents a composite list of successes claimed by the agency itself. This list is then evaluated by triangulation with external critics and several pertinent case studies. The case studies have been sorted into four media and issue based sections that correspond to the core offices of the agency: air quality; water quality; toxic substances and pesticides; solid and hazardous waste. The final section considers the problems that emerged from tensions with other state institutions.

Overall the structural limits to the power of the agency are made evident by the many situations where the EPA had to face substantial resistance from competing institutions and discourses. The difference between the theoretical powers outlined in chapter three and the achievements outlined in this chapter indicate the extent to which the web of relations/discourses has been warped to favour business on the basis of dominance in the control of the flow of resources.

Given the sheer volume of tasks undertaken over three decades, it would be unreasonable to try to assess every single action. Instead, I offer a cross-section of claimed "wins" with a few pertinent case studies to temper the notion of winning. The criteria I have used for selecting cases is fourfold. First, they come from different periods in the agency's history in order to average out points where the agency might be at its zenith or nadir in terms of influence. In this way it is intended to avoid extrapolating from one period that might over or underestimate its impact. Second, the cases deal with a broad cross-section of industries in order to cover the differing abilities of sectors to resist regulation. Third, the cases

constitute a mixture of proclaimed successes and failures in order to explore the extent of the agency's abilities. Finally, I have included examples of interactions with the other agencies within the state and some internal workings on specific issues.

1) The Claimed Victories

During the period 1970-95 US GDP rose by 90%, yet the EPA claims what at first appears to be an impressive list of wins on environmental quality.[1]

Box 4.1: Claimed EPA "Wins"

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a) Ambient Air Quality Improved:
• Average airborne particulates were reduced by 78%;
• SO_2 was reduced by 32%;
• NO_x increased only 14% (instead of a projected 28% if no regulation);
• Volatile organics were reduced by 26%;
• CO down by 23%;
• Atmospheric lead reduced by 98%.
b) Average Water Quality Improved:
• Lake Erie fishing industry returned;
• The Potomac river and 60% of all US surface waters were "swimmable" by 1994;
• Dumping wastes in the sea has "virtually stopped";
• Untreated waste dumping on land has "largely stopped";
• Pre-treatment programs for drinking water had increased from 65 in 1983 to 1,442 in 1990;
• Over 5,000 waste water and sewerage treatment plants had been constructed by 1994.
c) Some Hazardous Substances/Pesticides were Controlled:
• Lead in petrol was banned;
• Asbestos, PCBs, CFCs, DDT, and 230 pesticides were banned;
• Average level of DDT in humans had dropped from 8 ppm in 1970 to 2 ppm in 1983.
d) Solid and Hazardous Waste Site Problems were Addressed:
• The number of Superfund sites identified grew from 418 in 1982 to 1,300 in 1995;
• The number of Superfund sites cleaned up rose from 52 in 1989 to 349 in 1995;
• There have been over 1,700 Superfund emergency waste removal actions

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[1] This list is compiled from the most recent figures available from the following sources: US EPA, *The U.S. EPA's 25th Anniversary Report: 1970-1995*, [http://www.epa.gov/25year/], April 27, 1999; Ross Ettlin, "Facts to Reflect On", *EPA Journal*, (September/October 1990), Vol. 16, No. 5, p. 29; William Reilly, "The Green Thumb of Capitalism: The Environmental Benefits of Sustainable Growth", *Policy Review*, (Fall 1990), pp. 16-21; Henry Habicht, "Strategies for Meeting Our Goals", *EPA Journal* (September/October 1990), Vol. 16, No. 5, pp. 8-11; US EPA, *The New Generation of Environmental Protection: EPA's Five-Year Strategic Plan,* (Office of the Administrator, Washington DC, July 1994), pp. 1-2; US. Government, US. *Actions for a Better Environment: A Sustained Commitment,* (Response to Rio summit, Washington DC, June 1992); Carol Browner, *Statement to Congressional Democrats' Hearing on FY 1996 EPA Budget,* (Congress, Washington DC., February 26, 1996); and Carol Browner, *Statement to the Organisation for Economic Co-operation and Development,* (OECD Environment Policy Committee Meeting, Paris, February 20, 1996).

A simple check list like this does not tell the full story because it ignores the context of each claimed improvement. Freeman points out that the data on water pollution is selective and factors other than EPA regulations might have led to reductions of particular pollutants.[2] If industries close down in response to a depressed world market or move off-shore to take advantage of lower labour costs, the level of pollution to which they contribute may decline. A Department of Commerce investigation into the steel industry found that many integrated steel mills shut down in the USA because of a change in the price and demand for steel on the world market, a long-term lack of investment and an increase in competition from rapid spread of new mini-mills.[3] This led to a major reduction in sources of particulate pollution because the new mini-mills did not use coking ovens (unlike the older integrated mills).

My own experience as an industrial chemist and technical manager in the manufacturing sector supports this point. On several occasions I witnessed process modifications that were implemented because of their economic benefits or product quality improvements, but which also led to a reduction in waste emissions. The environmental benefits, however, were either not recognised at the time or were not considered to be a significant factor in the decision to proceed.

Although these circumstances may be rare, such reductions in pollution should not be included as a "win" for the EPA. The list of reductions in pollution may therefore slightly overstate the effect of the EPA, even though the major impetus for such changes have come from environmental regulation. What is needed is to consider whether the EPA did in fact alter the flow of resources through industry. In particular, it is important to establish if a firm being regulated would have behaved differently in the absence of EPA actions.

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[2] A. Myrick Freeman, "Water Pollution Policy", in Paul Portney (ed), *Public Policies for Environmental Protection*, (Resources for the Future, Washington DC, 1990), pp. 110-111.

[3] US Department of Commerce, Economic Affairs Office of Business Analysis, *The U. S. Primary Iron and Steel Industry Since 1958,* (US Government Printing Office, Washington DC, May 1985), pp. 40-1, 55.

Another point is that the creation, monitoring and enforcement of standards for a particular pollutant is by its very nature selective and runs the risk of neglecting potentially damaging substances. Further, the process of regulating any pollutant requires four key decisions. First, the selection of which pollutants to monitor and/or regulate must be made. Second, it is essential to decide what level is harmful or safe and set standards for exposure (both for emissions and ambient levels). Third, it is necessary to decide how urgently the standard should be met. Finally, given finite resources, it is necessary to decide how strictly to police and enforce the standard. All of these decisions rely upon discourses and contexts that influence what is considered to be the best available information (that is understood and accepted) and generate the political will to act. Many problems arise from the fallibility of both information and intent. This will be examined in the following case studies.

2) Air Quality

Consider the claimed improvements in air quality (Box 4.1a).

Box 4.1a: Air Quality Improvements

- Average airborne particulates were reduced by 78%;
- SO_2 reduced by 32%;
- NO_X increased only 14% (instead of a projected 28% if there had been no regulation);
- Volatile organics reduced by 26%;
- CO down by 23%;
- Atmospheric lead reduced by 98%.

Particulates and Ozone

Such claims of improvements in environmental quality are often subject to dispute. While the EPA claims a reduction of 78% in average airborne particulates, Rosenbaum cites a figure of 23%, which suggests that the EPA has overstated its claim. Further, many heavily populated urban areas have still not met the national ambient air quality standard.[4] The initial standard set for particulates in 1971 had to be revised in 1987 because it did not account for the

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[4] Walter Rosenbaum, *Environmental Politics and Policy,* (Second Edition, Congressional Quarterly Inc., Washington DC, 1991), pp. 182-183.

greater health impact of smaller particles that penetrate further into the lung. New information from scientific studies about these differing health impacts forced this regulatory change.[5]

One of the reasons that volatile organic emissions are important is that some of them cause the formation of ozone in the lower atmosphere, particularly in urban areas. While ozone is an important shield against UV radiation in the upper atmosphere, in urban airspace it is a respiratory irritant and has some corrosive effects. The case of ozone emission regulations demonstrates the difficulty of setting and maintaining environmental standards in the face of scientific uncertainty. The EPA set ambient standards for ozone at 0.08 ppm in 1971 on the basis of an epidemiological study by Schoettlin and Landau. By 1976 this study had been found to be flawed and the standard proved unattainable because the natural background level of ozone sometimes exceeded this level.[6] By 1978 a series of other studies had produced conflicting results. Two clinical trials suggested temporary health effects at levels of 0.15 and 0.25 ppm. An epidemiological study suggested effects on school children at levels below 0.10 ppm. Finally, animal trials suggested effects as low as 0.01 ppm.

The EPA came under pressure to loosen the standard from Carter's Regulatory Analysis Review Group [RARG] which was concerned that economic development in urban areas would have to be stopped in order to meet the standard. Industry wanted the standard to be around 0.25 ppm and used the scientific uncertainty generated by the conflicting results to support its case. In the end, EPA administrator Costle was forced to make a political choice between 0.08 ppm and 0.15 ppm based on the range of scientific results. In 1979 the new standard was set at 0.12 ppm. From 1980 to 1982 industry and environmentalists attempted to challenge the legitimacy of the new standard in court, but failed to

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[5] Rosenbaum, pp. 192-193.

[6] This standard required ozone not to rise above this concentration for more than one hour each year. Marc Landy, Marc Roberts & Stephen Thomas, *The Environmental Protection Agency - Asking the Wrong Questions: from Nixon to Clinton,* (Expanded Edition, Oxford University Press, New York, 1994), p. 50.

have it overturned.[7] Ozone levels had generally fallen by 14% by 1991 but despite the standard's revision many urban and industrial areas (such as Los Angeles) still do not comply.[8]

The particulate and ozone cases demonstrate some of the problems of assessing the consequences of environmental regulation generated by competing professional discourses. While a technical discourse may stimulate regulatory change, if the information generated by scientists appears to be incomplete or contradictory, other discourses can influence the decision making process. These discourses usually include economic considerations about the cost of regulation, social considerations about what constitutes an acceptable level of risk, and political considerations of what the state is willing to enforce and why. This allows external institutions and organisations to enter into the EPA's decision making process and constrain its ability to alter the flow of resources through society.

Vehicle Emissions

On the issue of vehicle emissions, the EPA appeared to have an early win for regulation over the protests of the motor vehicle industry. The Clean Air Act of 1970 required a 90% reduction of certain air pollutants by 1975 and gave the agency the power to regulate vehicle emissions. After identifying motor vehicles as one of the major sources of these pollutants, the EPA created a standard that required vehicles produced after 1975 to emit 90% less of these pollutants.[9] The American automotive industry vigorously opposed both the act and this regulation, claiming that they were not technically feasible and would cost jobs.[10] The act survived despite the opposition of an alliance of both industry and

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[7] Landy, pp. 57-58, 60-61, 66-72, 74, & 77-78. Robert V. Percival, "Checks Without Balance: Executive Office Oversight of the Environmental Protection Agency," *Law and Contemporary Problems*, (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 146.

[8] Rosenbaum, p.182; & Landy, p. 64.

[9] Portney, "Air Pollution Policy", pp. 31 & 37.

[10] Portney, "Air Pollution Policy", pp. 74-78.

automotive unions. It also survived the economic downturn of the late 1970s.[11] The industry did win a concession in having the deadline extended to 1977.[12] Eventually, the standard led to the introduction of catalytic converters and lower lead levels in petrol. Given the industry's resistance, it is unlikely that reductions in these emissions would have occurred in the absence of regulations.

Hoberg suggests that the reason for the vehicle manufacturers "defeat" was the context of historical circumstances and institutional arrangements. He lists five specific factors at work. First was the prevailing "public opinion" (discourse) that was concerned about the environment from the late 1960s onwards. This generated an electoral incentive for politicians to be seen to act on pollution. Second was the "elite competition between rival centres of policy making", that is between the White House and Congress. When Senator Muskie adopted a strong environment protection stance as a political strategy, Nixon was forced reluctantly to follow suit. The third point was the "expansion of conflict through media exposure". Private media companies, in seeking to increase revenue from advertisers, try to improve their ratings or circulation figures. One strategy for achieving this is to play on current public concerns. This encourages the depiction of graphic scenes of environmental destruction and presents issues as heroic struggles between small, injured communities and large, uncaring corporations. The effect is to amplify the electoral incentive for politicians to regulate. Hoberg's fourth factor is "the institutional separation of policy making from policy implementation" that insulates legislators from many negative impacts of implementation. This encourages bold congressional goals to be set for the EPA. Finally, "the lobbying strategies of industry groups" was at least in part to blame for the industry's defeat because it was poorly targeted and thought out. It underestimated the political significance of the environment.[13]

I think that Hoberg's analysis can be recast as two key points. First, there are structural institutional factors that favoured regulation, particularly the elite political competition that resulted from the separation of administrative and

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[11] Hoberg, pp. 91 & 94-95.
[12] Portney, "Air Pollution Policy Policy", p. 38.

legislative powers under the US constitution. Second, the political context of the time generated different strategic impacts of various discourses: public opinion, sensationalised media coverage, and a poorly targeted industry campaign. These points are concordant with the theoretical approach adopted so far and created a context within which the EPA could effectively pressure the industry for change. The main difference to Hoberg's approach is that he treats power as a kind of instrument to be strategically wielded by various groups within the structure of society. The trans-structural approach defines power in a way that draws on both structural context and the discourses at work within the web of social relations.

Ruckelshaus believed that a key factor that undermined the US vehicle industry was the context of foreign competition. "The Japanese testified at EPA hearings that they could achieve the standards and meet the deadlines. This had a powerful effect on American manufacturers to achieve the standards within the same period of time."[14] That is, the knowledge that a competitor could achieve the required standard and the perceived interest of that competitor to make this information public had a significant impact.

Despite the apparent victory over the vehicle industry, the success of the EPA's implementation of the Clean Air Act was patchy. It did not achieve the objective of a 90% reduction in all nominated pollutants by 1975, and manufacturers have still not been able to cut nitrogen oxide emissions by this amount.[15] Overall, by 1990, less than 15% of the Clean Air Act deadlines for achieving ambient air quality standards had been met and only 7 out of 274 known hazardous air pollutants had been acted on. The deadlines were extended to 1977, 1982, 1987, 1988 and have still not been met.[16] Further, Rosenbaum gives more conservative estimates of the improvement in air quality than those claimed by the EPA. He

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[13] Hoberg, pp. 78-82.
[14] William Ruckelshaus, *U.S. EPA Oral History Interview - 1: William D. Ruckelshaus*, (US EPA History Program, Washington DC, January 1993), p. 17.
[15] Richard J. Lazarus, "The Tragedy of Distrust in the Implementation of Federal Environmental Law," Law *and Contemporary Problems*, (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 325.
[16] Portney, "Air Pollution," p.38.

suggest that by 1991, carbon monoxide had been reduced by 30%, particulates by 23%, ozone and oxides of nitrogen by 14%.

One of the EPA's successes was the reduction of atmospheric lead against the wishes of both the petroleum industry and the OMB. While the EPA claims a 98% reduction, Rosenbaum suggests a figure of 75%.[17] This reduction was achieved by progressively phasing out lead as a fuel additive from 1982 to 1986. Initially an upper limit on lead in fuel was for attainment by 1982. The EPA then revised this standard and reduced lead further by issuing tradeable lead permits to producers, then progressively withdrawing them from the market by 1986.[18] The OMB opposed the move but only succeeded in delaying the final deadline.[19] The EPA was able to justify the revision of standards with a favourable cost benefit analysis.[20] In this case, the cost-benefit analysis used predominant economic rationalist discourses to support the argument for regulation.

The Steel Industry, Bubbles & SIPs

The EPA had a long and difficult battle with the US steel industry over meeting the goals of the Clean Air Act. Pollution problems from the steel industry in the mid-west had been recognised long before the existence of the EPA.[21] Steel production requires large quantities of water and energy, and produces large amounts of airborne hydrocarbons, SO_2 and particulates.[22] Under the 1970 Clean Air Act, the EPA was required to set national ambient air quality standards for specific pollutants, which it had done by 1971. The agency was also required to

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[17] Reilly, "The Green Thumb of Capitalism ...," p. 18; & Rosenbaum, p. 182.

[18] Bureau of Industry Economics, *Research Report 42: Environmental Regulation: The Economics of Tradable Permits - A Survey of Theory and Practice,* (Australian Government Publishing Service, Canberra, 1992), p. 53.

[19] Percival, p. 138.

[20] Arthur Fraas, "The Role of Economic Analysis in Shaping Environmental Policy," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 121.

[21] For example, see the comparison of air quality in the steel producing towns of East Chicago and Gary Indiana in Matthew Crenson, *The Un-Politics of Air Pollution,* (John Hopkins Press, Baltimore, 1971). This study showed not only the impact of steel production on air quality during the post-war period but also demonstrated the way such issues can be kept off the political agenda.

[22] Landy, pp. 209 & 220.

negotiate individual State Implementation Plans (SIPs) that specified how each State government was going to attain these standards.[23]

By 1977, it was apparent that the SIP process was not working. States were either producing lax regulations or not enforcing agreed standards, and there was widespread non-compliance across the steel industry. The EPA had even created separate arrangements for steel producers that offered lower standards in return for compliance.[24] The steel industry consistently claimed that regulations would increase costs dramatically, force plant closures and lead to mass lay-offs. Given the size and importance of the steel industry to the US economy, this job threat kept State and Local governments at bay and put the EPA in a difficult position.[25] Even President Ford publicly criticised the EPA on this point.

> Well, the EPA has the responsibility in that area for clean air and water. I believe that their program is basically sound. In some instances, they have gone too far. And I think up in Indiana, as I recall, in the Gary area, they were too rigid, and they required that several of the plants of one of the major steel industries up there to close. I think in retrospect that was a bit too arbitrary.[26]

There is now considerable evidence that this perception is inaccurate and the job losses in Gary would have occurred even if there had been no environmental regulations.[27] Further, several studies have found that environmental regulations may actually provide a positive stimulus to GDP growth in some circumstances.[28]

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[23] Landy, pp. 206-207; Rosenbaum, p. 180; & Portney, "Air Pollution Policy", p. 31.

[24] Landy, pp. 206-207; & Rosenbaum, p. 190.

[25] Landy, pp. 205, 207 & 222.

[26] Gerald R. Ford, The President's News Conference of May 3, 1976, in *Public Papers of the Presidents of the United States: Gerald R. Ford, 1976-77*, vol. II, (National Archives and Record Service, Washington, 1977) pp. 1442.

[27] Landy, p. 206.

[28] It was calculated in 1995 that US environmental regulations save industry money by reducing waste costs, create 68-90,000 jobs, and add about US $3.7 billion to GDP, see: The National Commission for Employment Policy, *Environment and Jobs: The Employment Impact of Federal Environmental Investments*, (NCEP Research Report No. 95-02, U.S. Government Printing Office, Washington D.C., April 1995), pp. 19-27. Another study was presented to the OECD in 1984 estimated that US environmental programs added about 0.2% to GDP in the first year, then declined slowly to a drag of 0.6-1.1% in their final year. In terms of employment, over 14 years 38,899 jobs were claimed to be lost in the US due to environmental regulation but 105,000 were created by the water treatment construction program and 43,900 jobs were created in pollution control equipment industries in 1983 alone. See: Organisation for Economic Co-operation and Development, *Environment and Economics*, (Results of the International Conference on

Russell Train, the second EPA Administrator, admits that the agency did shut down the coke ovens of one firm in Birmingham as a last resort.[29] This was unusual, however, and a 1985 study by the Department of Commerce of the US steel industry found that the majority of redundancies and closures were due to:

> 1. Changing composition of the U. S. economy -- away from goods-producing and steel intensive industries toward service-producing industries;
> 2. Intensified business cycle activity and rapid inflation since the mid-sixties;
> 3. Loss of steel markets to substitutes for steel, eg. plastics and aluminum;
> 4. Loss of domestic steel markets to foreign steel producers.[30]

Heavy debt servicing, the rising cost of labour, stagnant productivity, conservative management, inefficient use of materials, and the two energy price shocks were also cited as major factor in the industry's demise, not environmental regulations.[31] Despite these studies, the perception that environmental regulations and air pollution controls in particular cost jobs remains a persistent discourse that limits the power of the EPA to protect the environment.[32]

In 1977, Congress tightened the legislation and required all States to attain the national ambient air quality standards by 1982. Further, the amendments specified that reasonably available control technology was to be used to meet these standards. This meant that most SIPs had to be redrafted. The split between State and Federal powers made regulation more difficult. At first the agency concentrated on hydrocarbon emissions and left particulates to the States. Three

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Environment and Economics, Paris, 18-21 June 1984), pp. 69 & 93. Further research presented to the OECD in 1996 pointed out that environmental regulations do not reduce employment or encourage industry to move off-shore, see: Organisation for Economic Co-operation and Development, *Meeting of OECD Environment Policy Committee at Ministerial Level*, [http://www.oecd.org/news_and_events/reference/nw96-15a.htm], Paris, 19-20 February 1996, paragraph 12.

[29] Russell E. Train, *U.S. EPA Oral History Interview-2: Russell E. Train*, (EPA Oral History Program, Washington DC, July 1993), p. 15.

[30] US Department of Commerce, Economic Affairs Office of Business Analysis, The *U. S. Primary Iron and Steel Industry Since 1958*, (US Government Printing Office, Washington DC, May 1985), p. 134.

[31] Department of Commerce, pp. 46, 73, 95-96, 133.

[32] Landy, pp. 206 & 224-25.

of the four key mid-western States then relaxed the standards for particulate emissions.[33]

Another problem was that the 1977 amendments did not define what was to be considered reasonably available control technology. The EPA's first reaction was to release a compendium of such technology for each particular type of plant within a steel manufacturing site in 1980. The complexity of specifying technology for each type of plant eventually led to the adoption of emission "bubbles" in 1981. This was a way of specifying total permissible levels of site emissions, while leaving the firm the flexibility to decide exactly how to meet the standards. Instead of specifying standards or technology for each smokestack or piece of equipment, an aggregate level of emissions would be set for a whole production site (as if a bubble had been placed over it from where the maximum amount of pollution that could leak from the bubble was determined by the aggregate standard). The firm could then make internal trade-offs between wastes produced by different parts of the site. Reductions in emissions from one part might offset the need for reductions in another, as long as the total emissions stayed below the aggregate permissible level. In theory, this gave the firm the opportunity to meet pollution standards in the most cost efficient way by allowing it to select the cheapest and easiest emission control options on the site.[34]

Initially bubbles were set for particular pollutants (such as SO_2) and were only allowed in areas which attained the national air quality standards. Eventually generic bubbles for a collection of pollutants were accepted and were used in non-attainment areas if a company could provide trade-off reductions in other pollutants. The bubbles in these areas were set at a level that would approximate the total site emissions if the reasonably available control technology had been applied to each part of the site.[35]

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[33] Landy, pp. 208 & 210.
[34] Landy, pp. 213-214.
[35] Landy, pp. 220.

The bubble proposal had originally come from industry during a series of tripartite negotiations with unions and the agency from 1978 to 1980. These negotiations were designed to head off the employment threats and resolve some of the problems of implementing the 1977 amendments. The unions sided with the industry (as in the vehicle emissions case), seeing the EPA as a threat to employment. Environmentalists were initially excluded from the bargaining, but were later given the chance to comment on the outcome of the negotiations.[36] Industry argued for an extension of the 1982 attainment deadline. A compromise was worked out where individual firms could apply for a "stretch-out" of the deadline for compliance to 1985 if:

1. The delay is necessary to allow the company to invest in domestic iron and steel production operations.
2. The funds made available by the delay will be so invested - although not necessarily in the same plants where the delay occurs.
3. The company can show it will have the capital to meet air pollution control requirements by the deferred deadline.
4.. All of the company's facilities will either be in compliance or subject to consent decrees covering the phasing of new investment and having adequate interim control and monitoring provisions.[37]

These conditions gave an incentive to industry to moderate their claims of the costs of compliance in order to show that they could comply by the extended deadline. The result was a massive devaluation of estimated costs. Under the "stretch-out" system actual compliance investment fell to US $49.4 million from original industry estimates of over US $500 million.[38] This is a graphic demonstration of how much anti-regulatory discourses tends to encourage an overstatement in the costs of compliance.

The final outcome of this process is not encouraging. Early emission bubbles allowed companies to reduce dust by sealing roads and watering stock piles instead of limiting plant emissions. This did not take into account different health and environmental impacts from the dust's varying chemical composition or size. It was also difficult to police, which was a problem for the EPA's Office of

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[36] Landy, pp. 215 & 222-223.
[37] Landy, p. 226.

Enforcement.[39] Despite these difficulties, bubbles are still believed to be more economically efficient than technology specifying regulations under economic rationalist discourse.[40]

Of the ten "stretch-outs" applied for, nine were violated by industry.[41] Eventually the industry underwent a massive restructuring in response to the world market regardless of the EPA. This restructuring continued to displace employment well into the late 1980s. As many older steel mills were shutting down, there was a high growth in the construction of "mini-mills" that were cleaner and recycled scrap metal. These facilities found it easier to achieve compliance but were largely ignored by the tripartite agreements.[42] The older US steel mills, however, have continued to win regulatory concessions. The 1990 Clean Air Act amendments granted a 30 year extension in the deadline for coke oven compliance with new tighter emission rules.[43]

Overall, the US EPA's power to push the steel industry towards cleaner production appears to be weaker than would be expected given the theoretical resources and legislative backing outlined in chapter three. The lesson here is threefold. First, perceptions matter, even if they are the product of misleading discourses. The mistaken belief that environmental regulations were the major cause of steel industry job losses remains a powerful force against which any environmental agency must struggle.

Second, giving standard setting powers to a Federal agency and enforcement responsibilities to the States is highly problematic because large industries can rely on a context of significant structural power advantage over State governments

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[38] Landy, pp. 227, & 229-230.

[39] Landy, pp. 216-217; & Thomas McGarity, "The Internal Structure of EPA Rulemaking," *Law and Contemporary Problems*, (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 84.

[40] National Commission on the Environment [NCE], *Choosing a Sustainable Future*, (Island Press, Washington D.C., 1993), p. 25

[41] Landy, p. 229; Department of Commerce, pp. xvii & 55.

[42] Landy, pp. 231 & 263-264.

through their ability to threaten employment and local tax revenue, even if they fail to carry out this threat. This power was used explicitly by the US steel industry and contributed to the failure of SIPs during the 1970s.

Third, where a powerful industry is reluctant to invest in environmental protection, world market forces in combination with technological change may construct a greater incentive to clean up production than regulation. All these lessons are pertinent for the Australian situation. Threats to employment regularly appear in opposition to environmental protection, the NEPC-State arrangement is very similar to the US SIP program, and the Australian economy is highly exposed to the economic forces of the world market.

The Amoco Yorktown Refinery

One case where the bubble concept might be effective is the Amoco Yorktown Refinery in Virginia. A chance meeting between an EPA official and an Amoco manager led to a joint environmental audit of the plant to look for better ways to reduce emissions.[44] In 1990 Howard Klee, the Amoco director of the project, presented the study to an oil industry conference as a positive model.

> The study requires a multi-step process: preparing an inventory of all the releases from the Yorktown facility; exploring possible source reductions, recycling and emission control options; and assessing the costs and benefits of these options. The final step is to determine potential barriers - including technical and economic concerns as well as regulatory restrictions - and incentives for each of these options.[45]

The project involved more than 200 people from 35 organisations and cost US $2.3 million. It was able to uncover many cost effective alternatives to meeting emission standards. Using the techniques specified by the Clean Air Act the

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[43] Organisation for Economic Co-Operation and Development, *Control of Hazardous Air Pollutants in OECD Countries,* (OECD, Paris, 1995), pp. 61 & 211-212.

[44] Philip K. Howard, *The Death of Common Sense: How Law is Suffocating America,* (Random House, New York, 1994), p. 7.

[45] Howard Klee, "The Industry Perspective: Refining EPA/Amoco Yorktown Project", in *Responding to Environmental Challenge: A Discussion Among People from Industry, Government and Environmental Groups,* (The American Petroleum Industry Conference on Health and Environment, Washington DC, October 1990), pp. 11.

refinery spent US $2,400 per ton to reduce its emission of hydrocarbons by 7,300 tons per year. It was estimated that alternative techniques could reduce the emission of 7,500 tons of hazardous chemicals (including 7,100 tons of hydrocarbons) for US $500 per ton (less than 25% of the current cost).[46]

One example of how this would work was with regards to benzene emissions. Under the Clean Air Act regulations, Amoco was required to install filters in its refinery smokestacks to prevent benzene escaping into the atmosphere. The cost was US $31 million. The joint team found that the majority of benzene emissions came from the loading dock, not the smokestacks. Further, the loading emissions could be captured and recycled for a fraction of the cost of the benzene filters.[47] Initially the EPA did not have the discretion to allow alternatives to technology specified by legislation, so even if this had been known before the money was spent on the scrubbers, the EPA could not have granted Amoco an exemption.[48] The agency attained this flexibility in 1995 through the Pollution Prevention Act, the Common Sense Initiative, and Project XL.[49]

This project is a special case. Clearly neither the EPA nor industry could afford to go through the same process for every plant but many of the findings could be adapted to other refineries and similar manufacturing processes. Two lessons about the adequacy of environmental regulation have been taken from this experience. First, technology specifying regulations appear to reduce the incentive to innovate and find better solutions. Second, a more flexible statutory mandate can sometimes allow state agencies to adopt more effective strategies for environment protection.[50] At the end of the day improvements will only happen if there is a predominant discourse among industrial leaders that encourages them to pursue cleaner production methods. The Yorktown Refinery is one context where emission bubbles are useful, however, the steel industry example suggests that

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[46] National Academy of Public Administration [NAPA], *Setting Priorities, Getting Results: A New Direction for EPA,* (Report to Congress, Washington, D.C., April 1995), pp. 97-98.
[47] Howard, pp. 7-8.
[48] NAPA Report, pp. 97-98.
[49] US EPA, The *New Generation of Environmental Protection...,* p. 19; and Bill Clinton & Al Gore, *Reinventing Environmental Regulation,* (US Government, Washington DC, March 16, 1995), pp. 14-15.

recalcitrant firms can use such processes to slow down regulation and avoid compliance as long as possible.

SO$_2$ and Acid Rain

A further example of the problems associated with technology specific legislation arises from the attempts of the EPA to reduce the power industry's sulphur dioxide (SO$_2$) emissions. The problem with SO$_2$ emissions is that they are one of the precursors of acid rain. Emissions produced in the heavily industrialised US mid-west region are carried to the North-East coast and across the Canadian border by the prevailing winds. Acid precipitation in these regions reduces crop yield, erodes buildings, contaminates surface waters, kills aquatic species and damages native forests. The SO$_2$ regulations were an attempt to address the acid precipitation problem, particularly in the north-eastern (New England) area of the US, the Great Lakes and Canada.[51] This case presents an interesting example of a problem where development occurs in one area but its environmental impacts occur in another. It also highlights the problem of sovereignty and environmental damage because of the cross border pollution factor between the USA and Canada. Further, knowledge and uncertainty play a significant role because originally the link between SO$_2$ and acid rain was initially not well understood and this was the cause of much regulatory delay.[52]

In 1971 the EPA set New Point Source Performance Standards for coal burning power stations that limited emissions to 1.2 pounds of SO$_2$ for every million British thermal units (Btu's) of electricity produced. This was opposed by industry through the NIPCC and unsuccessfully challenged in court on the grounds that it would require the installation of smokestack scrubbers that produced hazardous sludge.[53] The 1977 Clean Air Act Amendments tightened the regulations further by specifying that emission reductions had to be achieved by

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[50] NAPA Report, pp. 103-104, & Howard, p. 180.

[51] Rosenbaum, p. 187.

[52] See for example, Robert B. Gibson, "Out of Control and Beyond Understanding: Acid Rain as a Political Dilemma", in *Managing Leviathan: Environmental Politics and the Administrative State*, eds. Robert Paehlke and Douglas Torgerson, (Belhaven Press, London, 1990), pp. 245 & 252.

[53] Hoberg, pp. 85-86.

the implementation of technology and could not be met by burning cleaner fuels.[54]

Specifying the use of scrubbers was not the most effective means to reduce SO_2 emissions. A switch to low sulphur western coal would have reduced emissions more and may have avoided as much as US $4 billion in scrubber installation costs.[55] Guruswamy claims that the total economic impact of pollution control equipment (such as scrubbers, precipitators and cooling towers) may increase the capital costs of a coal fired plant by as much as 45% and running costs by up to 30%. He suggests that these costs could be halved if the emission reductions were achieved by more integrated pollution controls.[56] These estimates seem extremely high and could be questioned, but the point that there are better and cheaper ways to achieve the same result is generally accepted. It has been estimated that for each ton of SO_2 removed by a scrubber, 3-6 tons of sulphurous sludge is produced that has to be disposed of by land-fill. This in turn often leaches into ground water and may lead to higher ecological costs.[57] Thus the solution may be neither economically nor environmentally the best outcome.

The decision to require smokestack scrubbers seems to be a concession to the Appalachian coal producers. Coal from the Appalachia region has a high sulphur content and producers would have suffered if it had been replaced by the cleaner western coal. Once it was realised that some form of regulation was inevitable, these coal producers formed an alliance with clean air activists to push for the adoption of mandatory smokestack scrubbers.[58] Although SO_2 emissions were reduced, the level is still high enough to cause persistent acid rain problems in the north-east. This has led to calls for more regulatory measures (both within the US and from the Canadian government). The Reagan administration delayed further

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[54] Hoberg, pp. 95-96.
[55] Howard, p. 34.
[56] Laksham Guruswamy, "The Case for Integrated Pollution Control," *Law and Contemporary Problems*, (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 48.
[57] Guruswamy, p. 42.
[58] Hoberg, pp. 99-100.

action on acid rain by claiming that more research was needed to uncover causes, even though there was a clear link to coal burning. This delayed effective action until after the late 1980s.[59]

A new scheme to reduce SO_2 emissions using tradeable permits was introduced in the 1990 Clean Air Act amendments. This scheme involves the issue of tradeable permits to industry, that will be progressively reduced by the government in order to halve SO_2 emissions by the turn of the century.[60] The program is similar to the scheme used to phase out lead in petrol in the early 1980s. Estimates of the benefits of this system vary. It is supposed to give firms the flexibility to choose how to reduce their emissions, or whether to buy more permits from other firms. The theory is that the most efficient means to reduce emissions will be adopted by some firms, who will then sell their excess rights to pollute to firms that cannot afford to clean up their operation easily.

One estimate of the cost savings of this system is US $8.9-12.9 billion over the next 18 years.[61] In 1994, the EPA estimated an annual saving of US $400-600 million.[62] Rosenbaum suggests that the bubbles, in conjunction with tradeable permits, have produced more modest savings in the costs of compliance. He cites a total figure of about US $435 million spread over 132 sites by the mid-1980s.[63] This is considerably less than predicted and overall the EPA's performance on SO_2 emissions is uneven.

Summary

Overall the EPA has achieved some success in reducing the damage done to air quality by industry, but it has not been as effective as it claims, nor as it needs to be if it is to help achieve sustainable industry. The EPA admits that success has been only partial. "Twenty years after the passage of the Clean Air Act, one in

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[59] Rosenbaum, p. 186; & Landy, pp. 254-255.
[60] US EPA, *Guide to Environmental Issues*, (Office of Solid Waste and Emergency Response, Washington DC, April 22, 1995), p. 9; Rosenbaum, p. 188.
[61] NCE, p. 24.
[62] Peter Passell, "For Utilities, New Clean Air Plan," *New York Times*, (November 18, 1994), pp. C1 & C6.

five Americans live in areas where the air does not meet Federal air quality standards."[64]

3) Water Quality

As with air quality, the EPA claimed "wins" on water quality that look impressive.

Box 4.1b: Water Quality Improvements

•The Lake Erie fishing industry has returned;
•The Potomac river and 60% of other US rivers and lakes were "swimmable" by 1994;
• Dumping wastes in the sea has "virtually stopped";
•Untreated waste dumping on land has "largely stopped";
•Pre-treatment programs for drinking water had increased from 65 in 1983 to 1,442 in 1990;
•Over 5,000 waste water and sewerage treatment plants had been constructed by 1994.

Water pollution affects surface waters (rivers and lakes), coastal waters (and estuaries), and ground waters throughout the USA. The quality of surface and ground supplies have been of particular concern to the EPA when they are sources of drinking water because any contamination will have human health impacts. Coastal pollution is considered significant because it can affect swimmers, reduce tourism, and may accumulate in seafood supplies. The three main sources of water pollution are: point sources from industry effluent or solid waste site leaching; point sources from urban waste-water (sewerage); and non-point sources (such as urban storm water and agricultural run-off). Two major acts deal with water quality: the Clean Water Act and the Safe Drinking Water Act. The main EPA regulatory efforts to date have been on point sources because they are easier to identify and regulate. They also generate the most immediate public concerns.

Waste-Water Treatment Facility Construction

The program for the construction of municipal sewerage and waste-water treatment plants is perhaps the longest continuous project picked up by the EPA. It had its origins in the failed Federal/State cooperative arrangements of 1948.

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[63] Rosenbaum, p, 137.
[64] US EPA, The *New Generation of Environmental Protection: EPA's Five-Year Strategic Plan*, (Office of the Administrator, Washington DC, July 1994), p. 1.

William Ruckelshaus, the first EPA administrator, laid much of the blame for the lack of action on water quality on State governments. (He had worked for the Indiana State Board of Public Health in the early 60s.)

> My impression in those days that pollution was essentially a problem caused by competition among the states for the location of industry within their borders. When we began to enforce pollution laws, they were pretty broad in modern terms and only addressed flagrant pollution. I mean, there were a lot of cities without any sewerage treatment and there were industries discharging absolutely untreated material into the waterways, killing fish. But whenever we pushed a major company very hard, there was always the threat they would move to the south where the governors said, in effect, "come on down here, we don't care, we need your business, we need jobs." My impression was, if you centralised all this oversight and enforcement activity, you could bring such states and governors in line because there wouldn't be any place for them to run and hide.[65]

When he became EPA administrator he found the issue was more complex but the context of the reluctance of Local authorities to act remained a significant problem. The Federal government assumed responsibility for the construction program in 1965, with the passing of the Federal Water Quality Act. Responsibility for the construction program was handed over to EPA in 1970.[66]

The EPA was initially slow to act and by 1976 only 15% of the funds allocated for construction had been spent.[67] One of the main causes for this sluggishness was the opposition of President Nixon to the 1972 Clean Water Act. At first he vetoed the act. When this was overturned by Congress, he tried to impound funds set aside for the implementation its programs from 1973 to 1975. It took a long legal battle in the supreme court to have this impoundment declared illegal and have the money released to the EPA.[68] The water treatment construction program

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[65] Ruckelshaus, p. 5.

[66] Joseph Petulla, *Environmental Protection in the United States: Industry, Agencies, Environmentalists,* (San Francisco Study Center, University of San Francisco, 1987), pp. 41-46; and US Government, "Environmental Protection Agency", in *Federal Government Directory,* (Washington DC, 1991), p. 71.

[67] Freeman, p. 109.

[68] Richard Lazarus, "The Neglected Question of Congressional Oversight of EPA: *Quis Custodiet Ipsos Custodes* (Who Shall Watch the Watchers Themselves)?" *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], pp. 224-225.

currently constitutes 36% (US $2.5 billion) of the EPA's total budget and over 5,000 treatment plants have been built.[69] Even so, these plants produce large amounts of sludge that wind up in solid waste disposal facilities, suggesting that they transfer pollution problems rather than solve them.[70]

Tradeable Effluent Permits

Under the 1965 Water Pollution Act, tradeable permits to release certain amounts of specific types of effluent were issued by the Federal government. Initially the states were supposed to help enforce this program, but many neglected their role.[71] (Some states have lifted their game and are issuing and enforcing permits, as well as initiating requests for Federal funding of new waste treatment facilities.[72] Perhaps the prospect of receiving more Federal funds was sufficient incentive to act.) The EPA took over responsibility for the permit system and under the 1972 amendments was set the goal of making all surface waters "swimmable" by 1985. This deadline was not met and was extended in 1984, 1987, and 1989.[73]

The regulations on industrial effluent were initially tightened during the early 1970s, then moderated as difficulties in achieving compliance became apparent. In 1977 the act was amended to require industry to use best practicable technology for reducing effluent and made allowances for the economic costs of effluent reduction technology. This was a deviation from the stricter requirement for best available technology (regardless of economic cost) that had been adopted in earlier acts.[74] The change in technological specification was a response to the National Commission on Water Quality report in 1976 that found "some of the technologies suggested by the EPA to meet best available technology

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[69] NAPA Report, pp. 18-20; and US EPA, The *New Generation of Environmental Protection: EPA's Five-Year Strategic Plan,* (Office of the Administrator, Washington DC, July 1994), p.1.
[70] Guruswamy, p. 42.
[71] Petulla, pp. 43-47.
[72] Rosenbaum, p. 198.
[73] Freeman, pp. 97 & 108.
[74] Freeman, pp. 100-103.

requirements actually did not meet water quality standards for some pollutants."[75] This demonstrates again the difficulty of specifying particular production technology in legislation.

During the 1980s, the EPA was caught in a context of two competing discourses and institutions: a Democrat controlled Congress was convinced of the need to improve water quality, while the Republican Administration was opposed to increased Federal spending programs. President Reagan vetoed the 1987 Water Quality Act amendments because they authorised total expenditures of US $9.6 billion to 1990 and a further US $8.4 billion to 1994. This veto was overturned by Congress, but despite the expenditure most deadlines had to be extended to avoid massive non-compliance and the stated water quality goals have still not been met in 1997.[76]

The EPA was criticised for being slow to act. It took five years to promulgate regulations under the 1972 act, many were not completed until 1988. By 1982, the agency had managed to issue 68,000 effluent permits: 52,000 were private and 16,000 municipal. Despite this there was still significant non-compliance.[77] A 1982 GAO report claimed that 82% of "major industrial facilities were not in compliance with their water discharge permits at least once in an 18-month period, and 31 percent were in serious violation at least 50 percent of the time."[78]

Impacts of the Water Programs

Assessing the effectiveness of the permit and construction program is difficult. Only a few pollutants are monitored, the exact meaning of what constitutes "swimmable" water quality is unclear, and any improvements may be due to factors independent of EPA actions.[79] Rosenbaum suggests that the results have been mixed.

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[75] Cited in Petulla, p. 75 [National Commission on Water Quality *Staff Report*, (US Government, Washington, D.C., March 1976), p. 11-68.]

[76] Freeman, pp. 104 & 106.

[77] Freeman, pp. 112-113.

[78] Petulla. p. 166.

[79] Freeman, pp. 110-111.

The combined impacts of the multibillion dollar Construction Grants program and the national permit system for pollution dischargers have prevented the further degradation of many surface waters, reduced pollution in others, and undoubtedly saved some high-quality waters from degradation. But the evidence of a major, long-term improvement in the overall quality of the nation's surface waters is elusive. Considering the nation's population growth and economic expansion of the last two decades, the stability of water quality must be considered an achievement of sorts - it could have been much worse. But the quality of the nation's surface water is apparently not greatly improved, either - "apparently" because adequate data are often unavailable.[80]

The figures cited by the EPA are based on surveys of only a small fraction of the country's waterways. The figures are based on measurements of only six pollutants and still indicate that 10,000 major lakes have serious problems.[81] While the EPA claims some successes on water quality, it admits that the record should be better. "Twenty-five years after the garbage-filled Cuyahoga River caught on fire, forty percent of our rivers and lakes are still not suitable for fishing or swimming."[82] William Reilly (former EPA administrator) admitted that non-point source pollution from agricultural and urban land run-off is still a major problem.[83] Further, ground water contamination is becoming an important issue because many areas of the US rely on it as a domestic water supply. Waste disposal techniques have often simply allowed hazardous material to percolate into ground water, transferring pollution from one media to another.[84] In the sulphate case discussed earlier, the use of scrubbers simply transforms air pollution into solid waste that leaches into ground water.[85]

On the strength of this evidence it seems that the EPA's water quality programs can only be considered a partial success. It would be reasonable to assert that the permit system has restrained the use of some surface waters as waste disposal systems by industry. Although differences between State and Federal

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[80] Rosenbaum, p.199.

[81] Rosenbaum, p. 40.

[82] US EPA, *The New Generation of Environmental Protection*, p. 1.

[83] William Reilly, "A Vision for EPA's Future", *EPA Journal*, (September/October 1990), Vol. 16, No. 5, p. 4.

[84] Landy, p. 109.

governments slowed down the implementation of the construction program, the agency has substantially expanded the national network of urban waste water treatment facilities. Given their past record, it is likely that these programs would have progressed more slowly if they had been left to State governments or Local councils. Together these projects have probably contributed to an improvement in the quality of some specific bodies of water with regards to some pollutants. The EPA has not achieved all the goals set for it by Congress, and most deadlines for compliance have been extended several times. This apparent failure is due in a very large part to the unrealistic nature of congressional expectations. It has taken much of the last three decades just to discover the location and type of water pollution sources. Non-point sources in particular still pose a major problem because of the difficulty of locating and measuring every contribution, let alone implementing some remedial action.

4) Toxic Substances and Pesticides

Toxic substances and pesticides are regulated by the EPA under the Toxic Substances Control Act (TSCA) of 1976, and the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1947 (amended 1964, 1972, 1978, and 1988). Toxic substances that wind up as solid waste are also dealt with by the Resource Conservation and Recovery Act, and abandoned toxic waste sites are dealt with by Superfund legislation (both of these will be discussed in the next section).

In 1977 an inventory of 60,000 common industrial substances was compiled under the TSCA. If a substance is nominated for assessment by the International Testing Committee the EPA organises the test and regulates the substance's use on the basis of the results. The EPA can also initiate its own review but must refer to other agencies (such as the FDA) where appropriate. In 1988 Congress passed a separate schedule for the review of pesticides.[86] The EPA claims a handful of wins in regulating toxic substances and pesticides (Box 4.1c).

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[85] Guruswamy, p. 42 & Rosenbaum, p. 11.
[86] Michael Shapiro, "Toxic Substances Policy", in *Public Policies for Environmental Protection*, ed. Paul Portney, (Resources for the Future, Washington, 1990), pp. 207- 213.

Box 4.1c: Hazardous Substances/Pesticides Controlled

•The banning of lead in petrol;
•The banning of asbestos, PCBs, CFCs DDT and 230 other pesticides;
•The average level of DDT in humans dropped from 8 ppm in 1970 to 2 ppm in 1983.

Lead and Asbestos

As pointed out in the discussion on air quality, the phasing out of lead in petrol from 1982 to 1985 was not straight forward, despite the fact that both the popular and scientific discourses on atmospheric lead were in accord on two points: (1) that high blood lead levels in children impair their intellectual development, and; (2) that lead in petrol causes higher atmospheric lead levels, particularly in urban areas, and this contributes to higher blood lead levels in children. While the context of these discourses supported the EPA's efforts, it still had to fight both industry and the OMB, which suggests that the ban was a "win" for the agency.[87] It also suggests that broad-based consensual knowledge alone will not prevent opposition from other institutions, be they state or private, that operate under counter discourses like economic rationalism.

The asbestos case tells a similar story. Asbestos was one of the boom products of the 1950s. Its fire-resistance and heat insulating properties encouraged its use as a building material. By the late 1970s, there was a general consensus that asbestos dust causes a fatal type of lung cancer. Yet when the EPA decided to ban 95% of asbestos use in 1979, the Office of Management and Budget (OMB) waged an arduous campaign against the ban that lasted until 1983.[88] First, it delayed regulations by demanding that the EPA provide a comprehensive cost-benefit analysis. When this analysis came out in favour of the ban, the OMB queried the figures and pushed for a less comprehensive ban. It argued that asbestos use should be limited only when the cost imposed on industry by detrimental health effects was greater than the cost of switching to alternatives.[89] (The detrimental

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[87] Reilly, "The Green Thumb of Capitalism," p. 18; Rosenbaum, p. 182; Bureau of Industry Economics, p. 53; Percival, p. 138; & Fraas, p. 121-122.
[88] Percival, p. 182-183.
[89] Fraas, pp. 123-124.

health costs included providing medical care to employees who developed lung cancer and any costs incurred by firms that were sued).

When this tactic failed, the OMB tried to have responsibility for regulating asbestos shifted from the EPA to the Office of Health and Safety Administration (which could only regulate asbestos use in the workplace, not in the home).[90] It was assumed that if a ban on asbestos was restricted to the workplace, which was the main source of exposure, the bulk of its economic (health) impacts would be reduced. The OMB then hoped that any further restriction of asbestos use would yield only a marginal reduction in health costs. In this situation, a domestic ban would be difficult to justify on cost-benefit grounds since the costs of further substitution would probably be high, and the expected benefits lower. This creative accounting was designed by the OMB to head off the comprehensive ban proposed by the EPA. The OMB even went as far as seeking help from the Canadian government which wanted to support its asbestos industry.[91]

This demonstrates the extraordinary power of the economic rationalist discourse that led a US state institution (the OMB) to form an alliance with a foreign government and the asbestos industry against other parts of the US state. In the end, however, the structural institutional power of the OMB was not sufficient to prevent the EPA imposing a ban on 95% of asbestos use. The remaining 5% of use was permitted (under tight control) because there was no technically feasible substitute. Despite this ban, it is estimated that over 500,000 buildings in the US are still contaminated by asbestos, and there is little or no money available for the necessary clean up.[92]

Pesticides

On the issue of regulating pesticides, the EPA has had severe problems. The office responsible for pesticide regulation had been transferred intact from the Department of Agriculture to the EPA in 1970. This office was staffed with

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[90] Percival, p. 182-183.
[91] Percival, p. 183.
[92] Rosenbaum, p. 46.

technical agricultural experts who were not committed to environmental protection and had primarily been concerned with the most effective use of pesticides to increase farm production.[93] They failed to perceive the importance of environmental issues and did not adjust to the discourse of protection in their new institution. This group constituted a pro-pesticide force within the EPA that actively resisted environmental regulation and tended to rely on industry information for assurances about the safety of products.

The EPA's Office of General Council, on the other hand, was mainly staffed by young lawyers who did perceive a problem with the widespread use of pesticides and were committed to the environmental protection discourse. They became a strong anti-pesticide/pro-regulation force within the EPA.[94] Infighting between these two offices hampered the EPA's overall efforts to regulate.[95] For example, staff transferred from the Department of Agriculture opposed the banning of DDT in 1971, so it was not until two commissions of inquiry condemned the pesticide in 1972 that administrator Ruckelshaus finally imposed the ban.[96]

Progress was also hampered by divisions within the Congress itself, many of which were the product of conflicting pro-environment and pro-industry discourses. The 1972 amendments to the FIFRA required the EPA to "review all pesticides and decide which should be removed from the market."[97] However, these amendments did not require suspending any pesticide that might be suspect while it was being tested. Such legislative weaknesses were due to the influence of major companies within the pesticide industry that had a virtual monopoly on information about the safety of their products. The inability of the EPA to challenge industry on technical grounds allowed major chemical companies to set much of the political agenda in opposing legislation.[98]

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[93] Hoberg, p. 197.
[94] Lazarus, "The Neglected Question of Congressional Oversight of EPA," p. 216.
[95] Hoberg, p. 134.
[96] Dennis Williams, *The Guardian: EPA's Formative Years, 1970-1973,* (US EPA, Washington DC, September, 1993), pp. 26-27.
[97] Howard, p. 57.
[98] Hoberg, pp. 125-126, 142-143, 167 & 214.

In 1975, the EPA finally issued new regulations regarding the information requirements that industry should meet for a product evaluation. In theory, this was a win for the pro-regulation forces. In practice, the regulations were never fully implemented.[99] By the mid-1970s, those politicians who identified their interests with the industry accused the EPA of over-reaching its responsibilities in these regulations. Those who aligned themselves with the environmentalists, criticised the EPA for its lack of action. The result was a proliferation of conflicting demands for the EPA to explain itself before numerous congressional committees and investigations. This side-tracked many of the resources that would have gone into pesticide regulation.[100]

Another complication was the opening up of legal institutions to broader public participation. During the 1970s American judges relaxed the requirements for proof of legal standing to undertake court action. This meant that industry, community groups and environmental organisations could challenge a regulatory decision in court without having to show a strict economic interest in the issue. The prevailing legal discourse among the judiciary assumed that such a move was in the public interest, and there was a dramatic increase in litigation as all sides sought to use legal institutions to advance their cause with the EPA routinely being dragged into court to defend itself. Most of the time this institutional expansion worked to slow down the EPA's activities, although this was not always the case.[101] Further, EPA rule making routines altered in line with a new discourse that sought to deter litigation and anticipate possible legal challenges.[102] This slowed down the promulgation of regulations because it required both a pre-emptive comprehensive legal analysis and the generation of sufficient technical information to support any decision in court.

Even when the EPA began to test pesticides and other substances, it faced a further set of difficulties. First, there was (and still is) a heated debate about how

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[99] Hoberg, p. 154-155.
[100] Lazarus, "The Neglected Question of Congressional Oversight of EPA," p. 216.
[101] Lazarus, "The Tragedy of Distrust in the Implementation of Federal Environmental Law," p. 334.
[102] Landy, p. 66.

to adequately test substances for their environmental and health effects. Should you conduct epidemiological studies to try to find a correlation between exposure to a particular substance and health effects among human populations? How can you screen out the impact of other substance exposures in such a study? How can you study a new substance to which no one has been exposed? Should you conduct toxicological studies using laboratory animals? What about the cruelty to the animals used? Could studies using cell cultures replace the use of animals in some cases? How can results on animals or cell cultures be reasonably extrapolated to human beings? How can estimates of the speed with which a substance will penetrate an ecosystem be calculated? How do you determine where it will tend to accumulate? What constitutes a "safe" level of exposure or accumulation? What constitutes an acceptable risk? What if several studies generate conflicting results? What should be done if there doesn't appear to be a "safe" threshold of exposure? What if a substance is found to be dangerous but is a key component of an industrial economy without alternatives?[103]

These are just some of the discourse problems faced by the EPA. The bottom line is that regardless of how thorough the scientific studies are, there will always be an element of choice about how to interpret results and construct suitable regulations. Even defining what is meant by "safe", "toxic" or "acceptable risk" is a problem. These choices will be affected by the context of technical, economic and political discourses. They will also be affected by the discourses of scientists that shape what they choose to study and how they structure their tests, and the regulators who must decide what is "safe."[104]

This uncertainty is difficult for managers, politicians, and regulators to deal with. My own experience in industry was that such uncertainty can lead to a great deal of stress and a kind of decision making paralysis. The EPA's job is made even harder because it is difficult to defend actions based on uncertain information in court. The desire to cope with this technical uncertainty has spawned a whole industry of risk assessment analysis, which is an attempt to construct new

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[103] See the discussion on risk assessment and scientific studies in Rosenbaum, pp. 150-155.

institutional routines to deal with these questions under a "systematic" and "rational" discourse.[105] Ultimately, however, any method for determining a suitable standard for chemical use or exposure is fallible.

A further complication to this scientific uncertainty is the institutionally constructed incentive to "cheat" in testing. Since the EPA does not have the resources to assess all regulated chemicals on its own it sub-contracts work to private firms. One of these firms was the Industrial Bio-Test Laboratories. In 1976 confidence in the new standards for pesticides was severely undermined when it was revealed that this company had falsified many of the relevant test results.[106]

Under the constructed market of competitive tendering for government contracts, analytical laboratories have an incentive to provide quick results at a minimum cost. This encourages them to cut corners instead of insisting on scientifically rigorous procedures from their staff. Further, the only other source of information, pesticide producers, have an incentive to release only those results that play down the impacts of their products on the environment. Together these incentives work to undermine the credibility of impact and risk assessments where the provider of the information is not economically disinterested. A strong case can therefore be made for some institutional reconstruction in this area. Perhaps an expansion of state testing facilities funded by a special industry levy, along the lines of the Superfund arrangements, would be appropriate.

The combination of agency infighting, industry resistance, conflicting congressional interference, increased legal challenges, and the lack of reliable information have worked against the effective regulation of pesticides.[107] Howard complained that after 22 years of delay, the "EPA has only gotten around to judging the safety of about thirty pesticides" and sees the EPA as bureaucrats

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[104] See the discussions in Landy on the difficulty of setting a standard for: Ozone, pp. 78-82; RCRA, pp. 123-126; and Carcinogens, pp. 186-191. See also Petulla, pp. 172-173.

[105] NAPA report, pp. 48-49.

[106] Hoberg, p. 155-156.

[107] Hoberg, pp. 142-143 & 167.

indulging in pointless "perpetual analysis."[108] In 1991, Rosenbaum claimed that "useful information about toxicity is absent for 64 percent of all pesticides and inert ingredients of pesticide formulations."[109] Lazarus pointed out that by 1984 less than half the 600 active and 900 inert ingredients of pesticides had even been registered.[110] The situation was not much better in 1987 with only 10% of pesticides being tested each year.[111] While claiming that the pesticide threat to the Bald Eagle had been eliminated, the EPA admitted that the use of pesticides has doubled in the last 30 years.[112] When attempts to ban pesticides have been made, they have run into coordination problems with other branches of the Federal bureaucracy. In 1983 the EPA banned the use of EDB as a soil fumigant while the US Agency for International Development continued to encourage other countries to use EDB and the US Department of Agriculture continued to demand its use on produce from the Caribbean.[113] The situation appears to be improving to some extent and by 1995 the EPA claimed that it had banned some 230 pesticides.[114]

Toxic Industrial Substances

The EPA's record on regulating toxic substances is similar to its record on pesticides. Legal actions brought by the Natural Resources Defence Council in 1973 and 1974 forced the EPA to nominate 65 toxic "priority pollutants" for regulation.[115] This suggests that the opening up of legal institutions can at least sometimes work for environment protection. The 1976 Toxic Substances Control Act gave the EPA the power to identify, test, evaluate and regulate the full life cycle of substances, from manufacture to use and final disposal. By 1977, the EPA had compiled a register of about 60,000 chemicals used by industry.[116] By

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[108] Howard, pp. 58 & 84.

[109] Rosenbaum, p. 220.

[110] Lazarus, "The Tragedy of Distrust in the Implementation of Federal Environmental Law," pp. 326-327.

[111] Petulla, p. 63.

[112] US EPA, *The New Generation of Environmental Protection*, p. 1.

[113] Rosenbaum, p. 92.

[114] US EPA, "Wastes, Toxics and Pesticide Management", in *The U.S. EPA's 25th Anniversary Report: 1970-1995.*

[115] Petulla, p. 55.

[116] Shapiro, pp. 207-208.

1985 less than 100 of these had been assessed for health risks.[117] This suggests that while the EPA was quick to list chemicals it was much slower to test and regulate them. Petulla summarised the problem in 1987.

> It has proven next to impossible to define a "safe" level of exposure, a fact that has tied the hands of legislators and regulators alike. For example, it would take two to four years and cost up to $1 million to test each of the 1,000-plus chemicals introduced into commercial use every year. About 1 percent of all chemicals, 10 percent of the pesticides and about 18 percent of all food additives are now tested each year. At least another 10,000 untested separate chemical entities are in widespread use.[118]

By 1990, the number of chemicals in common commercial use had increased to about 70,000 and could rise to 80,000 by the turn of the century. In 1990, "some 4.8 billion pounds [2.1 million tonnes] of about 320 specific toxic chemicals or chemical groups were released into the air, water, or land or transferred to treatment and disposal facilities by the nation's 23,638 largest industrial users of these chemicals."[119] According to the Toxics Release Inventory, however, by 1995 this figure had fallen to 2.2 billion pounds [1 million tonnes] and the overall trend was downwards.[120]

The EPA appears to have been reluctant to regulate some chemicals. A comprehensive CFC ban was not adopted until 1986, after more than a decade of warnings about their impact on the ozone layer. Formaldehyde, a solvent used in the textile industry for fixing dyes, was determined to be a carcinogen by the Office of Toxic Substances in 1979, yet in 1982 the EPA decided that it did not need to be regulated as a toxic substance. The National Resources Defence Council and the American Public Health Association began a legal challenge so the agency announced a reopening of its formaldehyde investigation. In 1984 the EPA reversed its decision, regulated formaldehyde as a toxic substance. It was not

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[117] Lazarus, "The Tragedy of Distrust in the Implementation of Federal Environmental Law," p. 328.

[118] Petulla, pp. 63-64.

[119] Joanna Underwood, "Going Green For Profit", *EPA Journal*, (July-September 1993), Vol. 19, No. 3, p. 10.

[120] US EPA, *Toxics Release Inventory 1995 Summary*, [http://www.epa.gov/opptintr/tri/pdr95/drover01.htm#CH5], June 1997, p. 5.

until 1986, however, when the EPA finally established a standard for the safe exposure of textile workers.[121]

In fairness to the EPA, the Congress has asked the impossible on toxic substances because of three factors. First, the number of existing industrial chemicals is simply overwhelming. It would be impossible for the EPA even to test each existing chemical without a dramatic injection of funds, facilities and personnel. Estimates for costs of a full assessment of each chemical vary between US $1 million and US $7 million and the time taken for each assessment would be 4 to 5 years.[122] Based on these figures, the total cost of testing all 70,000 chemicals would therefore be between US $70 billion and US $490 billion (which is 10 to 70 times the total EPA budget or 1-8% of total US GDP). There is no likelihood of such resources being committed to this program by Congress. The second point is that the number of chemicals is growing rapidly. As 1,000 new chemicals are added each year, US $1-7 billion would be required just to keep up with the new substances being introduced. At present this is well beyond the resources of the EPA.

To deal with these problems the agency adopted a graduated approach to risk analysis which screens substances according to their perceived likely impact. This process relies on current knowledge about similar substances or functional groups to give an indication of probable risks. Of the 7,595 risk analyses carried out by the EPA in 1993, the majority (6,166) were quick screenings that took less than two days and only 249 were major assessments.[123]

The third point is that the EPA is starting from a very low baseline of information about the effects of these chemicals on humans and the environment. Laboratory tests may highlight the most lethal substances and information about known compounds with similar functional groups may be a rough guide, but there is no extensive data on long term toxicological or epidemiological effects because these substances are so new. Further, there is no information on how they will be

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[121] Shapiro, pp. 225-226.
[122] Shapiro, p. 213 & Petulla, p. 64.

dispersed or accumulated in the environment and there is no indication of which species will be most vulnerable to their effects.

While the size of the problem explains why the EPA cannot meet the unrealistic goals set by Congress, it does not explain why so few have actually been regulated. According to Russell Train (a former EPA administrator), the chemical industry was not united in its resistance to the Toxic Substances Act.[124] The industry was singularly unsuccessful in propagating its view of acceptable risks with a public that remains wary of synthetic chemicals. It therefore appears that the problems have been more to do with the internal disunity of the agency, a lack of ability to define parameters for toxicity, and a general lack of an "expert" knowledge base to work from, which is exacerbated by the tendency to contract work out to private companies.[125]

While external forces, such as the obstructive power of industry and Congress, played a significant role in slowing down the regulation of pesticides, it has been largely internal forces that have hampered progress on toxic substance regulation. There were even some external forces, such as the pressure applied by environmental groups through the courts, that appeared to assist the regulatory effort.

Toxics Release Inventory

One commonly acknowledged success for the EPA with regard to hazardous chemicals has been the Toxics Release Inventory. This inventory was established under the Emergency Planning Community Right-to-Know Act which was part of the Superfund amendments in 1987. Under this act, a set of 329 chemicals and groups of chemicals were designated to be toxic. Any facility with more than ten employees that imported, used, created or released more than a certain amount of any one of these chemicals was required to submit an annual report to the EPA. For plants that create, import or process any one of these chemicals, the threshold

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[123] NAPA report, p. 37.

[124] Train, p. 15.

was initially set at 75,000 pounds [33 tonnes] for 1987. This was progressively reduced to 25,000 pounds [11 tonnes] in 1989. Any facility that received more than 10,000 pounds [4.5 tonnes] of one of these chemicals was also required to report to the EPA. These reports have to include an estimate of the quantity released or sent for treatment and any waste reduction efforts. The cumulative information from these reports was then put on an electronic database that was made available to the public.[126]

The idea behind the inventory was threefold. First, to inform the public about their exposure to toxic chemicals, particularly plant workers and communities near these facilities. Second, to get business to conduct audits, find out what they were releasing, and bring this to the attention of senior executives. Third, to generate the incentive for change through a combination of public pressure and a new corporate awareness. It should be noted that firms could legally use and release these chemicals. There was no legal or financial incentive (in terms of fines) not to emit as long as other relevant regulations were complied with. The only sanction available under this program was the adverse reaction of the public.

The inventory was supported by labour, environmentalists, community groups and State and Local governments (29 State governments had already enacted similar legislation by 1985). It was opposed by the chemical industry. At first the industry tried to block the initiative by claiming that publicising what chemicals were being used would breach corporate confidentiality and place US firms at a competitive disadvantage. When this did not succeed, the industry claimed that the inventory would be incomprehensible "to the lay person" and wanted to restrict information only to the release of material safety data sheets for each chemical used. The implication was that more comprehensive information would

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[125] Landy's comments on the problems faced by the EPA staff in developing regulations under RCRA legislation are relevant here. See chapter 4, pp. 94, 97-98, & 105-106.

[126] Robert Gottlieb, Maureen Smith, Julie Roque & Pamela Yates, "New Approach to Toxics: Production Design, Right to Know, and Definition Debates," in Gottlieb (ed.), *Reducing Toxics: A New Approach to Policy and Industrial Decision Making,* (Island Press, Washington DC, 1995), pp. 131-132.

be misunderstood and cause unnecessary alarm.[127] In the end, industry was not able to stop the inventory but it was able to curb its operation.

There appears to be a broad consensus that the Toxics Release Inventory has been largely successful in putting pressure on firms to reduce their use and emission of toxic substances.[128] Further, there appears to be a downward trend in the releases reported under the inventory, with total reported emissions falling by 46% from 1988 to 1995.[129] The EPA explains this success with the rationale that the inventory generates a constant incentive to reduce emissions through market mechanisms (ie. fear of adverse publicity and threats of legal action for compensation if any adverse health effects result from toxic releases).[130]

Generally, recommendations have suggested extending and strengthening the program.[131] There are, however, serious limitations to the program as it now stands. While the inventory did put public pressure on firms to reduce their emissions, many do not find such reductions "cheap or easy."[132] Some parts of the chemical industry have therefore adopted a strategy to reduce the figures in the inventory, rather than the actual releases. The first move was to restrict the number of chemicals designated as toxic. Originally a list of some 670 chemicals had been proposed, industry was able to reduce this to 329. The final list of chemicals appears to be somewhat arbitrary.[133]

> According to data published by the Working Group on Community Right-to-Know, as of 1991 (ie. accounting for listing and delisting actions since the original list) the TRI chemicals list remained limited to only 173 out of 189 CAA [Clean Air Act] hazardous air pollutants; 40 of 126 CWA

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[127] Gottlieb, pp. 133-135.

[128] F. Henry Habicht, "Strategies for Meeting Our Goals", *EPA Journal,* (September/October 1990), Vol. 16, No. 5, p. 10, & John Wise, "Partnership for Environmental Technology Education", (Paper presented to the Second Semi-Annual Resource Instructor Conference, Las Vegas, February 21, 1992, Internet http://www.epa.gov/docs), p. 4.

[129] Underwood, p. 12; This drop was calculated before the number of chemicals registered on the inventory was increased by 286, US EPA, *Toxics Release Inventory 1995 Summary*, pp. 6 & 15.

[130] US EPA, *Sustainable Development and the Environmental Protection Agency: Report to Congress*, (Policy Planning and Evaluation, Washington DC, June 1993), p. 16, and Wise, p. 4.

[131] NAPA Report, pp. 94 & 103-104.

[132] Peter Cebon, "Corporate Obstacles to Pollution Prevention", *EPA Journal,* (July-September 1993), Volume 19, Number 3, p. 20.

[133] Gottlieb, pp. 133-135.

[Clean Water Act] priority pollutants; 140 of 316 RCRA [Resource Conservation and Recovery Act]-regulated "P" (acute toxics) and "U" (chronic toxics) chemicals; 90 of 101 reproductive toxins and 202 of 351 known or probable human carcinogens listed by California's Safe Drinking Water and Toxic Enforcement Act of 1986 ("Proposition 65"); 41 of 129 chemicals listed as known or probable human carcinogens by the EPA Cancer Assessment Group; and 69 of 117 FIFRA [Federal Insecticide, Fungicide and Rodenticide Act] special review pesticides.[134]

In 1994 Carol Browner announced that the number of toxic substances included in the inventory would be increased.[135] The inventory was expanded later that year to encompass 647 chemicals.[136] Despite this improvement, the inventory is still a long way from tracking the 70-80,000 chemicals in common industrial use.

Another criticism is that many state and private facilities fail to report under the program.[137] The EPA estimates that as many as one third of facilities required to report under the legislation default. Further, there are a large number of exemptions for specific sites from the inventory. These include: "utilities, mining operation, oil and gas production, agribusiness, municipal waste management facilities, and all Federal facilities". Many of these exemptions were withdrawn in 1997 and the TRI was granted substantially more coverage.[138]

When industry does report, however, its figures often appear to be distorted or contradictory. One petroleum plant cited 4,876 pounds of Benzene released in the 1992 inventory, but the same facility reported 110 million pounds under a New Jersey State regulation for the same year. The inventory shows up these exclusions and distortions by fluctuating wildly from year to year. In 1987 there was supposedly 20 billion pounds of total toxic releases. In 1988, after six chemicals had been removed from the inventory list, the figure fell to 6.2 billion

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[134] Gottlieb, p. 135.

[135] Carol Browner, *Press Briefing by Hazel O'Leary, Secretary of Energy, Bruce Babbitt, Secretary of the Interior, Carol Browner, Administrator of EPA and Katie McGinty, Director of the Office of Environmental Policy*, (White House Office of the Press Secretary, April 21, 1994), pp. 4-5.

[136] US EPA, *Toxics Release Inventory 1995 Summary*, p. 3.

[137] National Commission on the Environment, p. 55.

[138] "Among the proposed industry sectors included in the expansion are: metal mining, coal mining, electrical utilities, ... hazardous waste treatment and disposal facilities; chemical and allied product wholesale distributors; petroleum bulk stations and terminals; and solvent recovery services." US EPA, *Toxics Release Inventory 1995 Summary*, p. 3.

pounds. The Office of Technology Assessment suggested that the 20 billion figure should be doubled to include unintentional and unreported releases, then multiplied by ten to account for toxic chemicals released that were not on the original list. This reasoning gives a figure of 400 billion pounds [180 million tonnes] of toxic chemicals being released into the environment in the US in 1987.[139]

The scorecard for the EPA on regulating toxic substances and pesticides is therefore mixed. The agency was able to ban lead in petrol and 95% of asbestos uses despite industry resistance and the objections of the OMB. It was extremely slow to act on pesticides and toxic chemicals, due to its lack of expertise and internal unity. The toxic release inventory has been a qualified success, but has been substantially hemmed in by industry.

Institutions, Knowledge & Discourse

Overall what these cases suggest is that knowledge is a significant factor in determining the success or failure of a program if there is a suitably responsive power structure.

Consider the asbestos and lead cases. The knowledge about the health effects of these substances was based on a consensus about information provided by scientific studies, together with the discourse that such scientific evidence was trustworthy. This knowledge helped generate a public discourse about the need to regulate. Public opinion had electoral significance in the context of the diffuse structure of the representative political system and a loose party system. This generated a political incentive to regulate. On the other hand, the opposition of industry and the OMB was undermined by favourable cost-benefit analyses that were based on the economic discourse which both groups use to support their own institutions. This included the constructed economic incentive to avoid costly litigation and higher insurance premiums. Hence knowledge and structural

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[139] Gottlieb, pp. 131, 136-137, & 132.

context (discourse and constructed institutions) worked together to support regulation and restrain opposition.

The pesticide case was very different because the same discourse on the validity of scientific knowledge worked to delay regulation through two mechanisms. First, there was a lack of what was considered "reliable" scientific evidence for the negative impacts of pesticides on the environment. This allowed industry to argue for delay until such evidence was found by using economic discourse to support their desire to avoid what might be unnecessary costs of finding substitutes if a product turned out to be safe. Second, the scant technical information that was available came from industry itself and had been accepted unchallenged by regulators and politicians in the past.

These factors allowed industry to effectively set the political agenda early on by convincing a substantial part of Congress that regulation was not only unnecessary but a threat to employment. This process was accentuated by the discourse of the pesticide office within the EPA that was aligned with the industry. In terms of toxic chemical regulation, the lack of credible technical information together with the sheer volume and diversity of chemicals being used was a major problem. The few results that were produced were often contradictory (as in the ozone case) or did not indicate a clear threshold for safe exposure (as with most carcinogens).

This situation was further exacerbated by a lack of experience and technical expertise within the EPA among senior managers and lawyers, particularly with regards to toxic waste. The discourse on the validity of scientific knowledge persisted however, and in order to avoid challenging this commitment the agency perpetually sought more information in the belief that some clarity would emerge. The overall effect was to paralyse the EPA in a dilemma between a discourse-based belief in the certainty of scientific knowledge and the obvious uncertainty in the information that was being produced.

The Toxics Release Inventory, on the other hand, put a simple set of emission records into the hands of local communities, labour and environmentalists. The common discourse on the health dangers of artificial chemicals generated a perceived interest among these groups in reducing their exposure to these emissions. This in turn generated a public opinion critical of polluting firms and specific production facilities. Two structural institutional mechanisms then came into play to provide a feedback loop that modified the perceived interests of both industry and government.

First, firms forced to compete in the market have come to perceive an economic interest in projecting a positive image to the public (hence the proliferation of corporate advertising and sporting sponsorships). The underlying logic appears to be that a better image equates to more customers and increased profits. Adverse public reaction therefore generated a perceived incentive for firms to change their emission record (either in appearance or in reality).

The second mechanism is through the political system. Prior to the inventory, State and Local governments were caught between the threat of relocation (equating to lost jobs) from industry if environmental regulations were introduced, and the demands of the local community for a healthy environment. The inventory seems to have shifted public attention from what Local authorities *should* be doing to what industry *is* doing. This changed the issue from how dirty the air or water is to how much pollution a particular plant has been emitting. The result is to give labour, environmentalists and community groups a specific facility or firm as a concrete target and encourage the public to take its complaints straight to the polluter, not the regulator. This may be why State governments have been keen to embrace this legislation.

5) Solid and Hazardous Waste

Hazardous waste is regulated by the EPA under two Federal acts: the Comprehensive Environmental Response, Compensation, and Liability Act of

1980 that deals with the clean up of contaminated sites (also referred to as "Superfund"), and the 1976 Resource Conservation and Recovery Act (RCRA).

Resource Conservation and Recovery Act

The RCRA was a set of amendments to the Solid Waste Disposal Act. It took the approach of regulating hazardous substance from cradle to grave. This required the producer of any designated hazardous substance or waste to keep detailed records about its manufacture and/or disposal. The act initially began to address the problem of abandoned dump sites but was rewritten in 1984 to avoid conflict with the 1980 Superfund legislation.[140] The EPA was slow to implement the RCRA and by 1979 had not promulgated any regulations.

A study by Landy (et. al.) cites several reasons for this slowness. First, there was a general ambiguity about the powers granted to the agency so staff did not know exactly what they could do. Second, there was a problem defining what waste should be classified as hazardous because no guidelines were given in the act. Third, there were inadequate levels of resources and staff committed to the Office of Solid Waste, which was responsible for administering the new act. Fourth, there was a general lack of expertise on how to manage or regulate hazardous waste within the EPA. (This expertise developed later.) Fifth, very little was known about the nature of the hazardous waste problem. There was a lack of even basic information about the type and volume of waste being produced and the impact of common disposal practices. Finally, there was a "turf war" within the EPA over responsibility for hazardous waste between media offices.[141]

The cross-media transfers that occur with hazardous waste disposal exacerbated the "turf war" within the agency. One study suggested that 50 to 90% of waste dealt with under the RCRA originates from effluent which cannot be released

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[140] Roger C. Dower, "Hazardous Waste", in Paul Portney (ed), *Public Policies for Environmental Protection*, pp. 161-162 & 165.
[141] Landy, pp. 89-106.

under the Clean Water Act.[142] According to Rosenbaum about "23 percent of all hazardous waste is disposed of in landfills and another 25 percent by deep well injection. Both landfills and deep well injection are major sources of ground-water and surface-water contamination."[143] This chain of transfer can extend from air emissions through land contamination to water pollution. The sulphurous sludge produced by smokestack precipitators required under the Clean Air Act winds up in landfills and then percolates into bodies of water (see the air quality section).[144]

These cross-media effects caused a great deal of tension between the offices of air, water, and solid waste. They also highlight one of the key dilemmas of environmental regulation. While a media based legislative approach may be the most obvious way of addressing immediate and specific problems, it may also have the unfortunate side-effect of simply transferring rather than eliminating pollution. This problem has been acknowledged by the EPA and recent programs have attempted a more integrated approach.[145]

The lack of expertise in managing hazardous waste within the EPA is akin to the lack of knowledge about pesticides and toxic substances that was dealt with in the previous section. This problem becomes apparent during the early stages of attempting to implement legislation and works to slow down the promulgation of regulations. Over the last 25 years, the EPA has managed to build up considerable expertise in these areas and has had a great deal of hands-on experience.[146] Therefore, expertise within the EPA can be treated as a kind of institutional inertia. It inhibits rapid change early on but builds up a momentum for the continuation of programs in later years. This makes it important to adjust the trajectory of a program early because major changes get more difficult as regulatory actions age.

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[142] Nancy Firestone, "The Federal Perspective" in *Responding to Environmental Challenge: A Discussion Among People from Industry, Government and Environmental Groups*, (The American Petroleum Industry Conference on Health and Environment, Washington DC, October 1990), p.4.
[143] Rosenbaum, p. 216.
[144] Guruswamy, p. 42.
[145] US EPA, *The New Generation of Environmental Protection*, p. 1.

At a more fundamental level, Petulla notes that "the nation still lacks an effective, workable definition of hazardous waste to determine what should be landfilled or treated."[147] One of the more peculiar examples of this problem was recounted by Howard and is worth quoting in some length.

> On the banks of the Mississippi River in Minneapolis, a mountain of 75,000 tons of lime sludge built up over sixty years, the by-product of a gas-acetylene plant. By the early 1980s, something had to be done with it: It sat directly in the path of a proposed highway. The mountain was, by most accounts, harmless. Lime, which is highly alkaline, is used in agriculture and pollution control to lower the acidity of land and water. EPA and Minnesota's pollution-control agency, however, each has a rule that designates as "hazardous waste" any material with a pH of over 12.5. The rule generally makes sense, but not for lime; the pH is also affected by dampness, and the mountain of lime sludge had a pH of 12.7.

> Faced with this conflict between law and reality, the Minnesota pollution board then did what I understand is a typical test in this age of technology: it got a rabbit, shaved a spot on its back, and applied the hazardous waste. Nothing bad happened, you may be relieved to hear, and the pollution board was prepared to sneak by the rule. But a disgruntled contractor who had lost the bid for removing the lime went public with the fact that the lime was, at least in the eyes of the law, "hazardous waste." The Highway was stopped dead in its tracks.

> The state got another idea: A local power plant wanted to use lime in its pollution-control efforts. But the power plant would only take it if it didn't come with the tag of hazardous waste, which, under environmental laws, would be like agreeing to a criminal conviction. Unfortunately, even thought everyone knew lime wasn't hazardous and the purpose was to decrease other forms of pollution, the rule was crystal clear on this point; the rule even had a separate prohibition against waiving anything that qualified as "hazardous waste." Minnesota's Pollution Control Agency could not provide the comfort. The lime was finally pushed to the side onto adjoining park land, where, with the help of the sun, it eventually dried its way into lawfulness.[148]

This example suggests that there is a danger in rigid legislation that fails to permit some discretion on the part of the regulator. However, when the EPA failed to

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[146] Stephen Cohen, [Book Review] "The environmental protection Agency: Asking the Wrong Questions", *Political Science Quarterly*, (Spring 1991), Vol. 106, No. 1, pp. 144-145.
[147] Petulla, p.63.
[148] Howard, pp. 15-16.

produce RCRA regulations after several years. both the Congress and environmentalists sought to force the agency to act. The Environmental Defence Fund (among others) took the EPA to court in 1979 arguing that the agency was obliged by law to issue regulations. This raised the possibility of the EPA being put into a kind of "receivership" where a circuit court judge could supervise the agency until regulations had been issued. In the end the court accepted the EPA arguments about the difficulty of the task and only required the EPA to provide a schedule for proposed action. This was deemed to be sufficient evidence that the EPA was fulfilling its statutory obligations.[149]

The EPA's internal response to these pressures was to short circuit its regulatory procedures and omit the red border review process for RCRA regulations from 1979 to 1980. This was requested by assistant administrator Tom Jorling of the Office of Solid Waste (that had responsibility for the RCRA regulations). The idea was to speed up the process and reduce some of the infighting between offices. While this was effective, it stepped on quite a few toes within other parts of the agency.[150]

The amendments passed by Congress in 1984 limited the agency's discretion further by including a detailed schedule for action. Two studies suggested that these amendments have inhibited the EPA's actions.[151] This highlights a second major dilemma for environmental regulation. How do you give an agency sufficient flexibility to choose the most effective action, without granting it license to dither? Tom Jorling, after leaving the agency, suggested one possible solution for the RCRA case. He claimed that almost all solid waste is generated by less than 5,000 sites. Given the relatively small number, he suggested that the EPA could tailor regulations for each site to achieve the most effective outcome.

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[149] Landy, pp. 109-112.
[150] McGarity, pp. 95-97; & Landy, pp. 104-106.
[151] Robert Paehlke and Douglas Torgerson, "Toxic Waste and the Administrative State: NIMBY Syndrome or Participatory Management?", in Robert Paehlke and Douglas Torgerson (eds), *Managing Leviathan: Environmental Politics and the Administrative State*, (Belhaven Press, London, 1990), pp. 265-266.

Howard compares this approach to what is happening at the Amoco Yorktown refinery.[152]

The problem of insufficient resources has been one that has plagued all aspects of EPA operations. With the regulation of hazardous wastes it was particularly acute in the late 1970s. While the public considered hazardous waste sites to be a high priority for action, the EPA perceived greater risks from other environmental problems.[153] The conflict in perceptions and discourses explains why the EPA was reluctant to commit resources, why environmentalists were keen to force some action in court, and why Congress wanted to be seen as getting tough with the agency in the 1984 amendments (in order to court the green vote). President Clinton and Vice-President Gore released a statement on Earth day in 1995 which touched on this issue. They gave an undertaking that RCRA actions would address high risk issues.[154] What this means in practice is still unclear.

Contaminated Sites and Superfund

The Superfund legislation of 1980 was designed to deal with contaminated waste sites that posed a threat to public health or the environment. Its main purpose was to provide the EPA with the resources to locate contaminated sites and force firms responsible for the waste to clean them up. For sites where responsible firms could not be identified, a special fund was created for remedial action to be undertaken by the EPA. The fund was financed by a special levy on certain chemical products.[155]

As the legislation was being developed in the late 1970s a major public storm blew up over an abandoned chemical waste dump beneath an urban development at Love Canal, near Niagara Falls in New York State. In 1976, toxic chemicals were found to be leaching into ground water in the area and there were concerns about the health impacts on local residents. A local action group formed and the

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[152] Howard, p. 177.
[153] Dower, pp. 160 & 151.
[154] Bill Clinton and Al Gore, *Reinventing Environmental Regulation*, (US Government, Washington DC, March 16, 1995), p. 9.
[155] Landy, pp. 144-145.

issue was taken up by politicians during the 1978 State election. After the election, remedial action became bogged down by wrangling between State and Federal authorities over who should pay while the EPA struggled to formulate regulations.

The whole episode received sensational national and international media attention from 1978 to 1980. Finally, President Carter was forced to act when it became an election issue in 1980. In the end, some residents were relocated and the most contaminated area was fenced off. Many commentators have attributed the creation of the Superfund legislation to the context generated by Love Canal, however, the legislation was already on the drawing board before the issue blew up.[156]

The chemical industry fought the Superfund legislation and was able to get some politicians whose electorates relied heavily on the industry for employment on side. By using their influence over key congressional committees these politicians, together with the OMB, were able to weaken the legislation and gain significant exemptions. One of the key sticking points was the assignment of liability. The proposed legislation invoked strict, joint and several liability in assigning costs for site redemption. Strict liability meant that a firm would have to pay even if it had not been negligent. Joint and several liability meant that where only a few of the responsible firms could be identified, they would have to pay the whole cost of a site clean up, even though other firms had contributed to the problem. This concept was invoked to side step the difficulty of identifying all firms and apportioning blame in difficult cases. Industry argued that if the waste disposal had been carried out legally, firms should not be held liable and claimed that it was unfair for minor contributors to pay for the consequences of other firms' actions.[157]

During its passage through Congress these liability provisions came under severe attack and were weakened and restored several times. In the end the context of

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[156] Landy, pp. 134-140.
[157] Landy, pp. 145 & 156.

pressure from public concerns fed by Love Canal, a discredited and obviously self-serving industry campaign and the fears of a Democrat controlled Congress faced with an incoming Republican president (Reagan) got the legislation through.[158] The question of liability is also one which Australia has found difficult to deal with. The ESD Manufacturing Working Group was unable to reach a decision on this point. Environmentalists wanted strict liability for contaminated sites, industry representatives wanted no liability where waste disposal had been conducted within the existing laws.[159]

The US act was significantly expanded by the Superfund Amendment and Reauthorization Act (SARA) in 1986. These amendments increased the funds raised to US $8.6 billion in order to assist the EPA to undertake remedial actions.[160] Community right to know provisions were also included that required the EPA to notify the public of both the location of contaminated sites and to summarise any remedial action that was to be undertaken. Title III of these provisions created the Toxics Release Inventory (discussed in the previous section).[161] The EPA claims a number of achievements for its handling of Superfund (Box 4.1d).

Box 4.1d: Solid and Hazardous Waste Site Problems Addressed

- The number of Superfund sites identified has grown from 418 in 1982 to 1,300 in 1995;
- The number of Superfund sites cleaned up rose from 52 in 1989 to 349 in 1995;
- There had been 1,700 Superfund emergency waste removal actions.

On the first point, there are estimates that as many as 10,000 sites might need attention.[162] This means that after a decade, the EPA had only identified 13% of the total problem. On the second point, Rosenbaum suggests that only 34 sites had been satisfactorily completed by 1989, a figure he considers very poor for ten

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[158] Landy, pp. 159-167.
[159] Ecologically Sustainable Development Working Groups, *Final Report - Manufacturing,* (Australian Government Publishing Service, Canberra, November 1991), pp. 154-155.
[160] Dower, p. 169 & 174-175.
[161] Wise, p. 4; & US EPA, *Guide to Environmental Issues,* pp. 24-26.
[162] Lazarus, "The Tragedy of Distrust in the Implementation of Federal Environmental Law," p. 328.

years of effort.[163] It should be noted, however, that he does not hold the EPA solely responsible for this apparent delay. The public's susceptibility to the "Not In My Back Yard" (NIMBY) syndrome is also cited as a major source of delay.

> Public resistance to hazardous waste site permits and management plans under RCRA or Superfund is a serious and unsolved political problem affecting both programs. Coupled with litigation, the many political and administrative strategies available to citizen groups determined to prevent permits for local hazardous waste dumps can delay program implementation for years or decades.[164]

With regards to the third claimed win, while there have been many orders issued, a large percentage of firms are not in compliance. The number of clean up orders rose from 137 in 1984 to 212 in 1989. In that year 153 cases were referred to the Department of Justice for civil action. On the positive side, these figures suggest that the program is gaining momentum. Further, some exemptions have been removed and actions have been extended to Federal government facilities. In 1988, for example, the US Army, in Conjunction with Shell, was ordered to pay US $1 billion to clean up its Rocky Mountain chemical arsenal.[165]

The EPA administrators themselves admit that the Superfund program is less than perfect. Alm suggested that it was overly legalistic and costly but claimed that the need to act was more important than the quest for regulatory perfection.[166] The majority of money involved in Superfund actions goes on legal costs as firms try to prevent future claims that might arise from an admission of liability. While the EPA is keen to point out the positive impacts of the program, it admits that not enough has been achieved. "Fourteen years after Love Canal, one in four Americans lives within four miles of a toxic waste dumpsite."[167]

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[163] Rosenbaum, p. 48.

[164] Rosenbaum, p. 234.

[165] US Government Directory, p. 75.

[166] Al Alm, *U.S. EPA Oral History Interview-3: Alvin L. Alm*, (EPA History Program, Washington DC, January 1994), pp. 7-8.

[167] US EPA, *The New Generation of Environmental Protection*, p. 1.

Implications for Effective Regulation

Several lessons can be gleaned from these hazardous waste programs. First, they highlight the need to integrate media-specific legislation in order to avoid substituting superficial pollution transfers for genuine waste reductions. Second, to be effective an agency requires adequate resources. a solid base of knowledge on which to draw, and a structure that encourages internal cooperation rather than competition. The cases cited suggest that it will take about a decade to gain such attributes and achieve the momentum that an effective major program needs. Third, Superfund and the RCRA demonstrate the requirement for a balance between the need for sufficient external stimulus to act and the need for flexibility to pursue the most effective regulatory activity. This might be achieved by setting some generally agreed public priorities at the outset. Fourth, it appears that the problem of hazardous waste is larger and more insidious than has been anticipated. Finding and cleaning up toxic waste dumps that have been ignored for decades is going to be a major exercise for many years to come. Finally, these cases suggest that sometimes the power of business over politics can be moderated by strong electoral considerations. Although both the RCRA and Superfund was enacted against the wishes of industry, there were considerable concessions that weakened the legislation, exempted many firms, and delayed implementation. Further, electoral politics, like increased court action, is a double-edged sword. It has sometimes worked to encourage action on contaminated sites but has also inhibited projects that attempt to locate new waste treatment facilities.

6) Internal Tensions

One of the most difficult periods for the EPA was during the two terms of the Reagan Administration. The first term of 1981-1984 was the most turbulent, but problems persisted right to the end of the second term in 1988. This is an important period because it demonstrates how far it is possible to immobilise the state by inserting counter-institutional discourse driven political actors into key decision-making roles. It is also an indication of the extraordinary lengths that such actors are prepared to go to in pursuing their discourse agenda.

Many of the problems already discussed occurred in the context of the Reagan administration, including: delays in acting on acid precipitation problems; extended delays in toxic waste regulation after 1980; the presidential veto of money for water construction programs; the refusal to regulate formaldehyde; and OMB moves to prevent the banning of both lead in petrol and asbestos. Other problems included: delaying and misdirecting Superfund money; substantial cuts in EPA funding; a large drop in enforcement actions; the political coercion of career staff; and the misleading congressional inquiries.[168] The motivation of the Reagan administration was a discourse that Federal agencies such as the EPA were inherently inefficient and an unnecessary drag on the economy. In fact, Reagan had been elected with a stated discourse of wanting to get government off the backs of the people and a strong distrust of centralised state authority. Under Reagan's version of "new federalism", that echoed Nixon's discourse, agencies like the EPA were to be scaled back and the States given prime responsibility for environmental problems.[169]

Key Personnel

The first move was to place people who shared a discourse opposed to Federal intervention at the top of key bureaucracies.[170] There were four main players with regards to the environment: Anne Gorsuch (now Anne Burford) became the EPA Administrator; Rita Lavelle took over as Assistant Administrator of the Office of Solid Waste and Emergency Response (which administered the Superfund

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[168] U. S. House of Representative Committee on Energy and Commerce - Subcommittee on Oversight and Investigations, Together with Minority Views, *Investigation of the Environmental Protection Agency: Report on the President's Claim of Executive Privilege Over EPA Documents, Abuses in the Superfund Program, and Other Matters,* (U. S. Government Printing Office, Washington D.C., August 1984), pp. 9-12.

[169] Anne Burford & John Greenya, *Are You Tough Enough,* (McGraw-Hill, New York, 1986), pp. 64-65.

[170] Robert Dallek, *Ronald Reagan: The Politics of Symbolism,* (Harvard University Press, Massachusetts, 1984), pp. 74 & 85-87; Smith, p. 60; Benjamin Ginsberg & Martin Shefter "After the Reagan Revolution: A Postelectoral Politics", in Larry Berman (ed), *Looking Back on the Reagan Presidency,* (The John Hopkins University Press, Baltimore, 1990), p. 256; Landy, p. 247; & Melvin Marcus, "Environmental Policies in the United States", in Chris Park (ed), *Environmental Policies: An International Review,* (Croom Helm, London, 1986), p. 71.

legislation); James Watt became secretary of the Department of the Interior; and David Stockman was made head of the Office of Management and Budget.

All of these people were put in charge of parts of the Federal bureaucracy that they saw as part of the problem, not part of the solution. The clearest example is James Watt who as the Secretary for the Interior was responsible for administering national parks, protecting wildlife and managing forest reserves. Watt gave an undertaking that under his stewardship the US would "mine more, drill more, cut more timber to use our resources rather than simply keep them locked up." He also sought to publicly discredit the environmental movement. "What is the real motive of the extreme environmentalists, who appear determined to accomplish their objectives at whatever cost to society? ... Is it to simply protect the environment? Is it to delay and deny energy development? Is it to weaken America?" [171] Burford was also critical of environmentalists.

> In. my experience with Washington-based environmental lobbyists, their main concern is seeing how much money they can raise for their organizations by scaring the American public half to death. The truth about the vast majority of them is that they are not interested in the environment at all. They are just interested in power, political power, and the environment is just a platform for them.[172]

The next move was to reduce the regulatory activities of the EPA by getting Burford to slow things down from within the institution. When Ruckelshaus returned to the agency after Burford's demise he found that conscientious EPA staff were being victimised. "In one of the offices they had compiled a "hit list" of career appointees, drawn up in coloured ink on charts. They were targeted for dismissal because of alleged disloyalty to the [Reagan] administration."[173]

Burford refused to let staff use all the funds that had been appropriated by Congress. Under her leadership, there was a 69% decline in civil prosecutions pursued by the EPA, enforcement actions dropped to one eighth of what they had been under the Carter administration, and 34 new vehicle regulations were held

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[171] James Watt as quoted in Dallek, pp. 84-85.
[172] Burford, p. 98.

up.[174] Further, she only spent $135 million of the $475 million allocated for Superfund clean ups during her tenure.[175] Reagan himself managed to reduce the EPA's budget by 15% in real terms between 1981 and 1989.[176] Curiously, in contradiction to this trend he set up a new Environmental Crimes Unit within the Department of Justice that actively pursued criminal actions for serious breaches of the law.[177] This suggests a level of inconsistency in his guiding discourse.

Regulatory Impact Analysis and OMB

David Stockman used the OMB to put the brakes on the EPA from outside. His main power base was a comprehensive discourse of both economic analyses and congressional procedures, backed by a broad institutional authority delegated by the president.[178] In February of 1981, Reagan issued Executive Order 12291 that required all Federal agencies to justify any action on the basis that: "(1) there is adequate information concerning the need for and consequences of the proposed action, and (2) to the extent permitted by law, the proposed action will maximize net benefits to society as compared to all available alternatives."[179] Any proposed rule which was likely to have an impact of more than US $100 million a year had to include a Regulatory Impact Analysis (RIA) to be reviewed by the OMB. RIA is basically an economic cost-benefit analysis that details the estimated value of all costs to industry, the expected benefits, and compares these to possible alternatives that might achieve the same goals more cheaply. This economic cost-benefit approach was first championed by James Watt, then embraced by Anne Burford and David Stockman.[180]

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[173] Ruckelshaus, p. 31.

[174] US Government, "Environmental Protection Agency", pp. 73-74; Dallek, pp. 87 & 90; & Landy, pp. 249-250.

[175] U. S. House of Representative Committee on Energy and Commerce, pp. 123-124.

[176] Paul Portney, "EPA and the Evolution of Federal Regulation", p. 10.

[177] Ted Schrecker, "Resisting Environmental Regulation: The Cryptic Pattern of Business-Government Relations", in *Managing Leviathan: Environmental Politics and the Administrative State*, eds. Robert Paehlke and Douglas Torgerson, (Belhaven Press, London, 1990), p. 173.

[178] Hedrick Smith, *The Power Game: How Washington Works*, (Fontana/Collins, Glasgow, 1988), p. 60.

[179] Fraas, p. 117.

From 1981 to 1989 the EPA promulgated 90 rules designated to be major. The OMB required 74 of them to undergo RIA.[181] When the EPA did prepare RIAs, the estimates cited were usually challenged by the OMB, as in the lead and asbestos cases.[182] Under this system the average delay for an EPA major rule due to the OMB review was 64 days. For other departments the average was 40 days. These figures suggest that the EPA was singled out for special treatment by the OMB. Often delays took a regulation beyond its statutory deadline for promulgation and led to threats of legal action.[183] Ruckelshaus, who was EPA administrator under both Reagan and Nixon, claims that dealing with the OMB was one of the hardest parts of the job.[184] Even Burford, who was initially supportive of the OMB, came to see Stockman as a problem for the agency.[185]

The OMB initially argued that extensive and critical review of the RIAs prepared by the EPA was necessary to ensure both that government use of taxpayers money was efficient and that industry was not incurring needless expense.[186] In a congressional hearing the OMB was forced to admit that its estimates of the savings produced by the RIA procedure were suspect because they came from figures supplied by industry. Further, the whole RIA process may have generated more costs than benefits because of the delays incurred.[187] Percival points out that the OMB refused to put its own operation through cost-benefit analysis to see whether the delays were worthwhile. Although cost-benefit analyses were used to support reductions in Federal intervention, they were avoided in situations where they might favour increased regulation.[188]

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[180] Douglas Amy, "Decision Techniques for Environmental Policy: A Critique", in Robert Paehlke and Douglas Torgerson (ed), *Managing Leviathan: Environmental Politics and the Administrative State*, (Belhaven Press, London, 1990), p. 65.
[181] Fraas, pp. 117-119.
[182] Fraas, pp. 119-125.
[183] Percival, pp. 157-160.
[184] Ruckelshaus, p. 11.
[185] Burford, p. 27.
[186] Fraas, p. 125.
[187] Percival, p. 187.
[188] Percival, pp. 184-185; Amy, p. 69; & Rosenbaum, p. 133.

There is considerable evidence that during the Reagan period the OMB used the RIA procedure to collude with industry to slow down regulation.[189] On one occasion it was discovered that the OMB had deliberately leaked a copy of proposed EPA regulations to industry in order to help them prepare objections. The leak was discovered when an industry representative accidentally rang the EPA and left their comments on the draft regulations. The OMB was not alone in this sort of collusion with business. The NIPCC, set up by Nixon, was only supposed to consult business but actually became a tool used by industry to hold up regulation.[190]

Devolving Power to the States

The third move designed to inhibit EPA action was to accelerate the hand back of powers to State governments. This was achieved by accelerating the approval of new State Implementation Plans that had proved difficult to enforce under the 1972 Clean Air Act. The number of SIPs rose to 36 from 16 between 1980 and 1982. These plans were supposed to guarantee the enforcement of Federal laws by State authorities according to agreed procedures. Several States were also given responsibility for issuing effluent permits under the Clean Water Act and controlling underground injections under the Safe Drinking Water Act. Along with many other aspects of Reagan's "new federalism," this process was a failure and many states continued to avoid enforcing Federal regulations and standards.[191]

At the same time, the administration tried to stop legislation that appeared to expand Federal powers. This continued well into the second term of Reagan's presidency. In 1987 he vetoed the Water Quality Act because it required Federal expenditures of $9.6 billion by 1990 and another $8.4 billion by 1994. The veto was overridden by Congress.[192] Reagan also wanted to stop the increase in Superfund money in the 1986 SARA bill, but was forced to give in to Congress. He even had plans to reduce abatement requirements under the Clean Air Act but

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[189] U. S. House of Representative Committee on Energy and Commerce, pp. 284-287.
[190] Percival, pp. 151, & 168-170; & Lazarus, "The Tragedy of Distrust", p. 318.
[191] Rosenbaum, p. 190; & McGarity, p. 69; Landy, p. 205, 249-250; & Smith, p. 504.

did not have time to make a move before leaving office.[193] Regulations regarding acid rain were delayed through both terms by Reagan's, much to the annoyance of the Canadian government and despite the efforts of EPA administrator Ruckelshaus.[194]

Consequences for the EPA

The lack of regulatory action by the EPA during the first two years of Reagan's first term led to a series of congressional inquiries. In consequence, there was a massive purge of Reagan appointed officials from the agency in 1983. Johnson summarised the outcome.

> By the end of his third year in office more than twenty senior EPA employees had been removed from office and several key agency officials had resigned under pressure. The assistant administrator resigned amid charges that he had been unduly influenced by chemical industry lobbyists. The acting agency administrator resigned after accusations had been made that he had pressured employees to tone down a critical report on a chemical company accused of illegal pollution in Michigan. The agency's general counsel was investigated for possible perjury for statements made to Congress about his involvement in the clean up of a hazardous waste dump used by a former employer. The deputy chief of Federal activities was accused of compiling an interagency "hit" or "enemies" list, like those kept in the Nixon Watergate period, singling out career employees to be hired, fired, or promoted according to their political beliefs. A political candidate for the agency's third ranking position withdrew from consideration after suggestions were made that he had simultaneously represented private companies regulated by the EPA while serving as part-time consultant to the agency's chief executive.[195]

No one was immune from this fallout.

> Eventually Burford resigned [in 1983] in the midst of congressional accusations that she had politically manipulated Superfund money. Lavelle was fired after an internal memorandum she had written to the

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[192] Freeman, p. 104.

[193] Robert B. Gibson, "Out of Control and Beyond Understanding: Acid Rain as a Political Dilemma", in Robert Paehlke and Douglas Torgerson 9eds), *Managing Leviathan: Environmental Politics and the Administrative State*, p. 251.

[194] Rosenbaum, p. 186; Landy, pp. 254-255.

[195] Haynes Johnson, *Sleepwalking Through History: America in the Reagan Years*, (W. W. Norton & Co., New York, 1991), p. 170.

White House was "leaked" and became public. In it she accused a senior EPA official of "systematically alienating the business community". She was later indicted, tried and convicted of lying to Congress and served three months of a six month prison sentence.[196]

At one stage Burford was held in contempt of Congress for refusing to release subpoenaed documents.[197] James Watt became a political liability because of his unpopularity and was forced to resign in 1983.[198] David Stockman resigned in 1985.[199] In the end, these individuals were sacrificed by Reagan for political damage control. By removing them Reagan was able to ride out criticisms of stalled environmental programs, despite the fact that he had deliberately engineered the situation.[200]

Reagan's strategy did substantially inhibit the ability of a Federal institution to protect the environment in the short term.[201] However, the US political system is structured in a way that makes it difficult for the administration to dominate. The rivalry between Congress and the White House, the plethora of Congressional committees, and the electoral power of public opinion are substantial obstacles.[202]

Reagan's strategy was disruptive to the EPA and it has never fully recovered from the subsequent loss of public and Congressional trust.[203] The fear of agency capture and distrust of the administration led to Congress setting even tighter deadlines for action in legislation. It also began to greatly expand its use of "hammers" which set default standards and regulations, should the EPA fail to come up with its own by a specified date.[204] Congress lost patience over the

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[196] Johnson, p. 171.

[197] Robert Paehlke & Douglas Torgerson, "Toxic Waste and the Administrative State: NIMBY Syndrome or Participatory Management?", in Robert Paehlke and Douglas Torgerson (eds), *Managing Leviathan: Environmental Politics and the Administrative State*, p. 267.

[198] Frederick Walderstein, "Environmental Politics", in Philip John Davies & Frederic A. Waldstein (eds),*Political Issues in America Today*, (Manchester University Press, Manchester, 1987), pp. 190-191.

[199] Burford, p. 280.

[200] Smith, pp. 132, 423, & 904; Walderstein, pp. 190-192; and Burford, p. 281.

[201] Max Nicholson, *The New Environmental Age*, (Cambridge University Press, Cambridge, 1987), p. 102.

[202] Ginsberg, p. 256; & Rosenbaum, p. 79.

[203] Rosenbaum, p. 100; Glicksman, p. 286.

[204] Glicksman, p. 307.

implementation of regulations under the Resource Conservation and Recovery Act and implemented a strict timetable for implementation under the 1984 amendments. This has put a lot more pressure on the agency and limited its capacity for flexibility. [205]

The Limits of Agency Manipulation

Reagan's main purpose was to reduce external non-business influences on the environmental regulatory process and take control of the political agenda. This failed because the political context was already set against him. Judges appointed by him continued to let environmentalists challenge the government in court. The Environmental Defence Fund, for example, successfully sued the EPA in 1983 for excluding public input on pesticide regulation.[206] Congressional opposition also worked to keep the environment on the political agenda.

Hoberg suggests that the context of institutional, procedural and ideological (discourse) changes that supported environmental regulation in 1970 had become too entrenched to be easily reversed by Reagan's strategy.[207] These included the creation of an environmental institution, the opening up of legal institutions to environmentalists, and the public discourse that something has to be done about environmental damage. Such changes have limits and Hoberg admits that they have not fundamentally challenged economic power structures or habits of American society. "While significant progress has been made against air pollution, implementation has not taken the more draconian forms of shutting down plants or industries, prohibitions against economic expansion in heavily polluted areas, or major restrictions on the use of automobiles."[208] These actions would be against the perceived interests of powerful business institutions.

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[205] Paehlke & Torgerson, pp. 264-266.

[206] Schrecker, p. 182.

[207] Hoberg, pp. 171, 178, 181, 189-190, 193 & 195; this view is shared by Robert Paehlke, "Democracy and Environmentalism: Opening a Door to the Admin. State", in Robert Paehlke and Douglas Torgerson (eds), *Managing Leviathan: Environmental Politics and the Administrative State*, p. 42.

[208] Hoberg, p. 214.

While such factors worked to restrain Reagan, the effects of his policies may have actually worked to undermine his discourse about the need to support industry. Deferring regulations reduced the incentive for the development of cleaner technology and pollution control equipment in the USA. At the same time, European and Japanese companies continued to develop in this market so American companies lost their competitive edge.[209] With increasing levels of environmental regulation throughout the industrialised world, the demand for such technology is growing rapidly. World-wide the current market is estimated to be worth US $300 billion.[210] This is the final irony of the Reagan years. In trying to protect a narrowly perceived set of business interests by disabling Federal institutions, Reagan actually helped retard a growing industrial export sector.

It seems that little has been learnt by the supporters of an anti-Federal discourse within US politics. While Reagan was a Republican President who struggled with a Congress controlled by Democrats, Clinton is a Democratic President faced with a Republican controlled Congress and the struggle over environmental intervention has returned. During 1995, the Republican Congress passed bills to weaken environmental laws and in the fall budget session tried to impose a 25% reduction in EPA funding. These moves were stopped by Clinton's veto and Congress did not have the two-thirds majority needed to override his decision. The issue became part of a prolonged stalemate between the Congress and the President over the 1995/96 budget that went on for several months and involved two partial Federal government shutdowns. By March 1996, the budget bills that were supposed to pass in the previous September had still not been agreed upon and the US government had been running on temporary appropriations since October.

This raises an important question: what happens to the EPA if there is a context of both a Republican President and a Republican Congress at some stage in the future? What will prevent the scaling down of the agency's operations? Hoberg's

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[209] NCE, p. 79.

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analysis suggests that there will still be the environmentalists' institutional capacity to challenge decisions in court and the electoral power of pro-environment public discourse. The question then becomes whether this will be enough to save the EPA?

There are some indicators from past experience. During 1996 some hard-line Republicans were starting to back off from their demands for environmental cutbacks because of the fear of a negative electoral backlash. The Republican stance was undermined further by the leaking of the final report from the President's Council on Sustainable Development, that had several major business leaders defending the need for a "safety net" of Federal intervention. While they emphasised the need to reform this net, they did not support removing it all together. Further, their suggestions required a substantial increase in EPA funding[211]

These factors appear to have taken a considerable amount of wind out of the current anti-EPA discourse sails. The Clinton administration is also trying to reassure the Republicans that the agency has been "reinvented" to reduce "red tape" and substantial resources have been returned to the States through Performance Partnerships.[212] So it appears that Nixon's and Reagan's discourses on new federalism are alive and well.

Discourse and State Co-ordination

There are two main lessons from the Reagan years. First is the obvious conclusion that it is impossible to have effective environmental intervention in the context of different parts of the state being in conflict. The second lesson is more subtle. Both discourse and the institutional context are important in determining the power of an organisation. The discourse of key decision makers within the state

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[210] US EPA, *Creating a US Environmental Protection Agency That Works Better and Costs Less: Phase I Report, National Performance Review,* (EPA Washington DC, December 1994), p. ET-4.
[211] John H. Cushman, "Adversaries Back the Current Rules Curbing Pollution," *New York Times,* (Monday, February 12, 1996), pp. 1 & C11.
[212] US EPA, *Managing for Better Environmental Results,* [http://www.epa.gov/reinvent/annual/], May 5, 1997, pp. 2-3.

can significantly assist or inhibit effective regulation. However, regardless of their motivation such decision makers are constrained by the position that they hold within the organisation and the demands of surrounding institutions.

While Burford, Stockman, Watt, Lavelle and even Reagan were able to inhibit regulation for several years, eventually the requirements of their offices together with the institutional setting of Congressional inquiries, electoral considerations and legal challenges, undermined their refusal to fulfil the responsibilities attached to their positions. Power is attached to the position that decision makers are expected to fulfil within an institution, not to individuals personally (ie. bureaucrats, business leaders and politicians don't have power, their jobs do). Therefore, the ability of an organisation to influence the flow of resources through society is not wholly determined by an institutional setting, nor is it a kind of instrument freely wielded by senior decision makers within a power structure. It is an interplay between both publicly accepted institutions and the discourse of a multiplicity of decision makers. If you want to have effective environmental regulation you will need to align both the institutional settings for the entire state and the discourse of public officials so that they are working towards the same goal.

Conclusions

Overall, it would be reasonable to claim that the EPA has been responsible for a sizeable chunk of the investment in pollution protection measures each year by the private sector. This has probably slowed down the rate of environmental degradation during the three decades, prevented further deterioration of some aspects of the environment, and helped restore a few specific sites. It is unlikely that this would have happened to the same extent in the absence of Federal intervention. The agency's self-proclaimed "win" list, however, is misleading for several reasons. First, the list selects only a few pollutants for measurement and ignores many others. Second, the aggregate figures hide the distribution of impacts by allowing the poor environmental quality of inner cities to be offset by the better air quality of national parks. Third, the figures cited are often disputed

and may be overly optimistic. Fourth, the preferred pollution abatement methods were not the most effective and may have been selected to appease certain industries. Finally, some improvements in environmental quality may have been due to industry restructuring in response to changes in the world market, rather than EPA actions.

The case studies suggest that there are four main factors that have prevented the EPA from being more effective. One is the incredible scale of the problems that the agency has been asked to address that are well beyond the resources and authority provided by Congress. These problems require extensive information and a massive redirection of productive resources which the EPA alone does not have the power to engineer. Another problem stems from the fact that the legislation and programs administered by the agency have been built up piecemeal over a period of several decades. Laws were often enacted in response to a perceived crisis and have not been part of a coordinated plan. Further, many of the problems which legislation was supposed to address were not well understood nor were the impacts of regulations well anticipated. One result was the shifting of pollutants between media instead of their reduction.

A third factor is that industry has been significantly able to retard the EPAs progress through a number of mechanisms. These include: monopolising pertinent information about products, processes and impacts; distorting publicly released data; getting key political leaders to delay regulatory actions; keeping labour on side by perpetuating the fear that regulations costs jobs; routinely challenging EPA regulations and decisions in court; and finally, simply refusing to comply. Industry power is based on both its significant ability to influence the flow of resources through society and the common discourse of political, administrative, labour, and civic leaders that the profitability of business is an important factor in environmental debate. This discourse is now even shared by many environmental leaders, particularly those participating in policy making initiatives. Such pro-business discourse was taken to the extreme when EPA administrator Burford had a greater commitment to protecting industry interests than to protecting the environment.

Finally, the EPA has been constrained by the contextual limits of the political space grudgingly created within the complex structure of US political institutions. The American constitution separated the legislative, administrative, and judicial arms of Federal government and created inalienable personal rights to restrict the leeway of government power. To add to this, Nixon deliberately set the EPA within a network of hostile and competing agencies that shared responsibility for various aspects of environmental regulations in order to restrain the agency's actions. The legacy is an ongoing series of struggles over environmental regulation between the White House and Congress, between the EPA and the OMB, and between offices within the EPA itself. This situation has been further complicated by dividing responsibility between Local, State and Federal authorities. The end result is a complex, often self-contradictory state that has been inconsistent about its conviction to protect the environment.

In sum the EPA has had a positive impact on environmental quality but has been constrained by both pro-business discourse and the context of institutional structures. Were all parts to act in concert, the state could have had the capacity to push industry towards sustainability. On its own the EPA does not.

Chapter Five

Assessing the US EPA's Performance

Introduction

Previous chapters have outlined the structure of the EPA, its theoretical powers, and its actual experience. This chapter takes the trans-structural theoretical framework developed in chapter two and uses it in conjunction with comparative techniques to analyse the empirical research data outlined in chapters three and four. The aim is to establish the implications for both the power of state institutions and the conditions that make for effective environmental intervention. The rest of this chapter then uses the research results to build a foundation for the comparative analysis of the USA and Australia. The role of discourse and institutions is the major focus.

Four different methods of analysing the EPA's effectiveness are discussed and compared: meeting the stated goals; tracking environmental indicators; overcoming resistance; and redirecting resources. It is argued that while each contributes to the understanding of the effectiveness of state intervention, measuring the redirection of resources is the most significant. Four points become apparent. First, assessing the effectiveness of state institutions is a common problem for public policy studies. Second, as was stated in chapter two, the selection of method affects research outcomes and recommendations. Third, the choice of a particular method may be due to a political agenda supported by a particular discourse. Fourth, comparative analysis and triangulation can help identify and compensate for the fragmentation and distortions in the research findings that the different approaches may generate.

The rest of this chapter considers the implications of discourse and institutions in more detail. Section two reviews the way economic rationalist and pro-industrial development discourses have neglected the economic, social and ecological

benefits of intervention in order to construct a view that sees state actions as part of the problem. Section three outlines the lessons for the effectiveness of state action in terms of setting institutional priorities, coordinating agencies via a common set of discourses, and creating a structural capacity for institutional learning. These lessons can then be used in later chapters to evaluate the potential of recent Australian national environmental initiatives.

1) Methods for Analysis

Trying to summarise the experience of the US EPA at first appeared to be a deceptively simple task but two problems quickly emerged. First there is the question of where to begin trying to comprehend a US $7 billion organisation of 19,000 people operating a complex network of media, functional and regional offices?[1] This problem was solved by starting with a selection of pre-existing general reports on the agency and moving on to collect more detailed data from specific offices, programs and people. Secondly, there is a difficulty because there is no agreed or satisfactory method for determining the success or failure of the agency. In the end it was decided to use a combination of four different measures of success, three of which have been used before, the other being more original and based on the trans-structural theory power.

A first approximate measure of success might be derived from determining whether the US EPA achieved the specific goals set for it by Congress. This approach is often adopted by critics of the agency. A second option, promoted by the EPA itself, is to select a set of environmental indicators and see whether they have shown any improvement during the agency's operation. The third method is to review a set of case studies to determine a win/loss ratio and the level of resistance overcome by the agency. This method has often been used by American political scientists to explore the power of institutions or political actors. The final trans-structural method seeks to gauge the resources redirected through American

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[1] By media, I refer to those offices dedicated to controlling damage to one part of the total environment such as air, water or land. Functional offices are those that work to fulfil a bureaucratic function within the agency, such as the Office of Enforcement or the General Counsel. The agency is also divide up into ten regional offices, each responsible for four or five adjacent states, that mirror the structure of the head office in Washington DC.

society by the US EPA's activities. The difference between actual resource directions (indicated in chapter four) and the theoretical powers (outlined in chapter three) should indicate how much the web of force relations/discourses has been warped to favour business institutions (as predicted in chapter two).

Method 1: Meeting the Goals Set

The first method, measuring the agency against the goals set by Congress, is the easiest. While it is popular with critics of the EPA, this option is also the most misleading. The general goal set for the agency by President Nixon at its inception was apparently straightforward: "The EPA would be charged with protecting the environment by abating pollution."[2]

More specific goals were set by the individual pieces of legislation given to the EPA to administer. The 1972 Federal Water Pollution Control Act required the EPA to make all US waters "fishable" and "swimmable" by 1985. In 1994 at least 40% did not meet this criteria, although there had been substantial improvements in some water bodies such as the Great Lakes.[3] In 1970, the Clean Air Act set the EPA the task of establishing and enforcing National Ambient Air Quality Standards. Despite relaxing some of the original standards, 20% of US citizens still live in areas that don't comply.[4] Under the Federal Insecticide, Fungicide and Rodenticide Act, the EPA was suppose to evaluate and reduce the use of chemical pesticides. Only about 30 products have been fully evaluated and pesticide use has doubled in the last 30 years.[5] The 1976 Toxic Substances Control Act required the EPA to assess and define safe levels of exposure to common

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[2] Richard Nixon, "Special Message to the Congress About Reorganisation Plans to Establish the Environmental Protection Agency and the National Oceanic and Atmospheric Administration", in *Public Papers of the Presidents of the United States: Richard Nixon, 1970*, (Item No. 215, National Archives and Record Service, Washington, July 9, 1971), p. 583.

[3] A. Myrick Freeman, "Water Pollution Policy" in Paul Portney (ed), *Public Policies for Environmental Protection*, (Resources for the Future, Washington, 1990), pp. 97 &98; and US EPA, *The New generation of Environmental Protection,: EPA's Five-Year Strategic Plan*, (Office of the Administrator, Washington DC, July 1994), p.1.

[4] Walter A. Rosenbaum, *Environmental Politics and Policy*, (Second Edition, Congressional Quarterly Inc., Washington DC, 1991), p. 182; Marc Landy, Marc Roberts & Stephen Thomas, *The Environmental Protection Agency - Asking the Wrong Questions: from Nixon to Clinton*, (Expanded Edition, Oxford University Press, New York, 1994), p.64; and US EPA, p. 1.

[5] Philip K. Howard, *The Death of Common Sense: How Law is Suffocating America*, (Random House, New York, 1994), pp. 58 & 84; US EPA, p. 1.

industrial chemicals. Of the 70,000 industrial substances in common use, toxicity data is available for less than one third.[6] Under the Superfund legislation of 1980, the EPA was given the task of identifying and cleaning up abandoned hazardous waste sites. By 1994 only 12% of estimated 10,000 sites had been identified and only 200 had been cleaned up.[7]

Taken on its own this sort of data suggests that the EPA has generally failed to effectively fulfil its function, but the problem with this conclusion is that many of the goals set by Congress were simply unrealistic. For a start, the full extent of all these environmental problems was unknown when the legislation was drafted. Superfund, for example, was initially funded for only 4 years because it was assumed that all contaminated sites could be identified and cleaned up in that time.[8] A full analysis of the 70,000 common industrial chemicals would take 4 to 5 years for each chemical and the total cost would be 10 to 70 times the total annual EPA budget. What is more, there are about 1,000 new chemicals introduced each year.[9] Another problem is the reluctance of local and state authorities to take the tough actions that would bring cities into compliance with the relevant standards set by the agency.

Given this information, it is apparent that the EPA cannot be blamed for failing to achieve all that was demanded. It simply did not have the necessary resources or support and the goals set were far too ambitious. This approach therefore understates the success of the EPA but highlights the range, depth and seriousness of environmental issues.

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[6] Rosenbaum, p. 220.

[7] Roger C. Dower, "Hazardous Waste", in Paul Portney (ed),*Public Policies for Environmental Protection*, pp. 169 &174-175; US EPA, p. 1.

[8] Anne Burford & John Greenya, *Are You Tough Enough*, (McGraw-Hill, New York, 1986), p. 115.

[9] Calculation based on cost/time estimates by Michael Shapiro, "Toxic Substances Policy", in *Public Policies for Environmental Protection*, ed. Paul Portney, (Resources for the Future, Washington, 1990), p. 213; and Petulla, p. 64.

Method 2: Tracking Environmental Indicators

The second method of analysis is to track key environmental indicators during the EPA's operation. This is a more promising approach but still flawed. The method is preferred by the agency itself because it allows the EPA to claim what at first appears to be an impressive list of wins.[10] Consider the list mentioned in Chapter four (see Box 5.1).

Box 5.1: Environmental Indicators Revisited

Over a quarter of a century of EPA operations:
Ambient Air Quality Improved:
•Average airborne particulates were reduced by 63%;
•SO_2 was reduced by 27%;
•NO_X increased only 7% (instead of a projected 28% if there had been no regulation);
•Volatile organics were reduced by 26%;
•CO down by 40%;
•Atmospheric lead reduced by 97%.
Average Water Quality Improved:
•Lake Eerie fishing industry returned;
•The Potomac river and 60% of all US surface waters were "swimmable" by 1994;
•Dumping wastes in the sea has "virtually stopped";
•Untreated waste dumping on land has "largely stopped";
•Pre-treatment programs for drinking water had increased from 65 in 1983 to 1,442 in 1990;
•Over 5,000 waste water and sewerage treatment plants had been constructed by 1994.
Some Hazardous Substances/Pesticides were Controlled:
•Lead in petrol was banned;
•Asbestos, DDT, PCBs, CFCs were banned;
•Average level of DDT in humans had dropped from 8 ppm in 1970 to 2 ppm in 1983.
Solid and Hazardous Waste Site Problems were Addressed:
•The number of Superfund sites identified has grown from 418 in 1982 to 1,207 in 1990;
•The number of Superfund sites cleaned up rose from 52 in 1989 to 200 in 1994;
•There had been 1,700 Superfund emergency waste removal actions.

As was pointed out in chapter four, there are several problems with using this method to evaluate the effectiveness of the agency. To start with, although the general trends are agreed, the size of the claimed pollutant reductions are in

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[10] This list is compiled from the figures cited by: Ross Ettlin, "Facts to Reflect On", *EPA Journal,* (September/October 1990), Vol. 16, No. 5, p. 29; William Reilly, "The Green Thumb of Capitalism: The Environmental Benefits of Sustainable Growth", *Policy Review*, (Fall 1990), pp. 16-21; Henry Habicht, "Strategies for Meeting Our Goals", *EPA Journal* (September/October 1990), Vol. 16, No. 5, pp. 8-11; US EPA, *The New Generation of Environmental Protection: EPA's Five-Year Strategic Plan,* (Office of the Administrator, Washington DC, July 1994), pp. 1-2; U. S. Government, U. S. *Actions for a Better Environment: A Sustained Commitment,* (Response to Rio summit, Washington DC, June 1992); Carol Browner, *Statement to Congressional Democrats' Hearing on FY 1996 EPA Budget,* (Congress, Washington D. C., February 26, 1996); and Carol Browner, *Statement to the Organization for Economic Cooperation and Development,* (OECD Environment Policy Committee Meeting, Paris, February 20, 1996).

dispute and alternative estimates can vary substantially.[11] Further the creation, monitoring and enforcement of standards for a particular pollutant is by its very nature selective and runs the risk of neglecting other potentially damaging substances. This approach requires decisions to be made about acceptable risk, urgency and policing, all of which are influenced by discourses.

While a the agency's activities are probably responsible for the lion's share of these changes, it is possible that factors other than agency initiatives have led to improvements in environmental quality.[12] As was pointed out in chapter four, the US steel industry reduced the number of older integrated mills and opened cleaner mini-mills in response to changes in technology and the world market. This contributed to significant reductions in pollution which were not due to EPA programs.

Overall, while the first approach understates the EPA's performance, the second approach tends to generate an overestimation. If the approaches are taken together, the range of performance within which the EPA falls becomes apparent. This effectively establishes the coarse focus limits on the analytical microscope. What we need to do now is use the other methods to fine tune and bring the agency's impact into the clearest possible focus.

Method 3: Overcoming Resistance

A common method used by many American political scientists, particularly the pluralists, political and historical institutionalists, is to review case studies to determine which political actor or institution "won" a contested issue. These wins are then summed across a range of issues and cases to determine who has power. Often these sorts of studies suggest that power moves between institutions or actors depending on the issue and a range of other factors. A critique of this approach was developed in chapter two, and it was mentioned that Lukes has shown how a comparative analysis of case study material can often reveal hidden

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[11] Rosenbaum, p.182.

[12] A. Myrick Freeman, "Water Pollution Policy", in Paul Portney (ed), *Public Policies for Environmental Protection*, pp. 110-111.

aspects of power and resistance.[13] With regards to the EPA, a comparison of the powers outlined in chapter three and the actual achievements detailed in chapter four may be useful (see Box 5.2).

Box 5.2: Summary of Case Studies

- Nixon was reluctant to create the agency, which led to conflicting responsibilities with other parts of the state and a bottleneck on funds for the water construction program in the early 1970s;
- National ambient air quality standards for ozone and particulates had to be revised in the mid-1970s due to incomplete and conflicting scientific data;
- The agency succeeded in forcing tighter emission standards on the automotive industry in the late 1970s despite strong opposition;
- The steel industry was able to set the agenda on the use of emission "bubbles" in 1982 and gain extensions in the 1990 Clean Air Act standards for coke oven emissions;
- The eco-audit of the Amoco Yorktown refinery in 1990 was very successful;
- The tradeable permit program for SO_2 emissions was a partial success;
- The waste water treatment construction program was initially very slow;
- In the late 1970s the EPA had to back down on its demands for the use of best available technology under the Clean Water Act;
- Banning lead in petrol and 95% of Asbestos use in the early 1980s despite strong opposition from industry and the OMB was a major success;
- An lack of progress in regulating pesticides and toxic substances was a failure;
- The success of the Toxics Release Inventory despite industry resistance was a clear success;
- The lack of progress on cleaning up Superfund sites, in part due to the obstructive legal tactics of liable industries, was a failure; and,
- The extremely disruptive tactics of other state institutions, particularly under the Reagan administration, inhibited the agency's capacity to pursue the goals set by Congress.

A superficial review of this material might suggest that power has been won and lost on various occasions by all of the institutions mentioned, but the more detailed analysis provided in chapter four revealed several structural factors preventing the EPA from being more effective. First, the scale of environmental issues generated by industry exceed the agency's powers and resources. Second, conflicting imperatives were generated by uncoordinated and piecemeal legislation. Third, the agency was constrained by competition between different state institutions and discourses.

The fourth factor limiting the effectiveness of the EPA was the capacity of industry to block intervention by: monopolising and distorting information; coopting key political figures and labour; perpetuating the discourse that regulation costs jobs; routinely challenging agency actions in court; and simply

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[13] Stephen Lukes, *Power: A Radical View*, (Macmillan, London, 1974), pp. 11-22.

refusing to comply. Despite the occasional "win" the agency was generally at a structural disadvantage because of industry's ability to concentrate the control of the flow of resources through society. Had the agency not faced this resistance, it may have achieved a great deal more with regards to environmental protection.

The fact that industry is still able to exacerbate well understood and serious environmental problems indicates the extent to which the web of force relations/discourses have been warped to favour their constructed interests. Another indication is when both President Reagan and the EPA's administrator Anne Burford appeared to be more concerned with protecting what they believed to be the interests of business rather than the environment or future generations (see chapter four).

Method 4: The Redirection of Resources

The idea of measuring the EPA's ability to redirect the flow of resources through US society is a corollary of the trans-structural theory of power developed in chapter two. Trans-structuralism defines organisational power as the ability to redirect the flow of resources through the web of relations/discourses that make up a society so as to advance or defend perceived interests or ideas. Resources are anything that can be utilised by humans and are divided into five groups: natural, capital, revenue, labour, and knowledge. Knowledge is defined as sense data that is causally connected to the external world but has been modified by discourses. Perceived interests emerge from both external structural imperatives created by the shape of the web and internal discourses.

At the individual level, power is experienced as the pull and push of the web of personal relations/discourses in which people are enmeshed. At the societal level, this web of relations/discourses is warped by the concentrated capacity of a few large business and some state institutions to redirect resources. Applying this theory to assessing the effectiveness of the EPA requires some indication that the flow of natural resources, capital, revenue, labour or knowledge has been redirected through US society by the agency (as suggested in chapter two).

In terms of natural resources, analytical method two demonstrated that the EPA has had some impact on the flow of materials back into the environment by reducing some waste streams. It was also mentioned in chapter three that the agency has had an impact on the extraction of materials from the environment through administering environmental impact assessments (EIAs) for new developments. Together, these constitute an alteration in the flow of natural resources through industrial institutions and therefore constitute evidence of institutional power. The problems mentioned in the previous discussion suggest that this power is uneven in its strength and context, but still appears to have a significant effect on resource flows.

In terms of capital and revenue, there have been several estimates of the value of the pollution abatement industry in the USA. These estimates represent either expenditure or investment by firms who are polluters, and revenue for firms selling products or services in the pollution abatement market. Many of the EPA's actions have been subjected to cost benefit analysis. In 1990, for example, the OMB claimed that each major EPA regulation entailed an expenditure of US $500-1,000 million dollars by industry.[14] The expenditure by polluting industries can be seen as a measure of the economic resources redirected by the EPA, with some provisos.

Consider the following range of financial estimates. Underwood suggests that the annual figure for expenditure on pollution abatement measures by industry grew from about US $26 billion in 1972 to US $115 billion in 1993.[15] This growth coincides with the rise of the EPA and its programs. The Government Accounting Office calculated that from 1970 to 1990 the total costs to the US economy of meeting environmental regulatory requirements was US $700 billion, with US $86 billion being spent in 1990 alone. This means that the US was devoting about 2% of GNP to pollution control in 1990 (which was projected to become 2.8% by

[14] Arthur Fraas, "The Role of Economic Analysis in Shaping Environmental Policy," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 113.
[15] Joanna D. Underwood, "Going Green For Profit", *EPA Journal,* (July-September 1993), Volume 19, Number 3, p. 10.

the year 2,000).[16] Rosenbaum gives an estimate of around US $90 billion for 1991.[17] Department of Commerce figures suggest that environment expenditures in 1992 was about US $102 billion, while the EPA estimated $136 billion.[18] In 1994 the EPA claimed that the domestic pollution abatement industry was worth about US $150 billion.[19] The differences in these figures gives an indication of the range of uncertainty of such estimates, but a range of US $86-150 billion can reasonably be asserted for current annual expenditure or revenue in environment protection.

Before these sorts of figures can be equated to some measure of the EPA's success four questions need to be answered:
1. Would this money have been spent by business without regulation?
2. How much of this expenditure would have been induced by State agencies and Local Government authorities?
3. Has this money been used effectively to protect the environment?
4. What does this say about the ability of the EPA to redirect economic resources such as capital and revenue?

The answers to these questions can be found in the experience of the EPA in the last 30 years.

First of all, it is reasonable to assume that without regulation, this sort of expenditure would probably not occur, or at least not occur so soon. In a competitive market, firms perceive an incentive to minimise costs and maximise profits. One way of doing this is to externalise as many costs as possible. Externalising costs can lead to environmental degradation. For example, it may be cheaper to pump raw effluent into river than to pay for its treatment and disposal. Further, the prevailing discourse among business decision makers has meant that industry is often unaware of any benefits that might come from avoiding, reusing

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[16] Richard J. Lazarus, "The Neglected Question of Congressional Oversight of EPA: *Quis Custodiet Ipsos Custodes* (Who Shall Watch the Watchers Themselves)?", p. 223.

[17] Rosenbaum, pp. 134 & 20.

[18] National Academy of Public Administration [NAPA], *Setting Priorities, Getting Results: A New Direction for EPA,* (Report to Congress, Washington D. C., April 1995), p. 19.

or recycling waste.[20] Thus, industry and the market have constructed an interest in polluting. This perceived interest manifested itself as the reluctance to invest in environmental protection prior to the 1970s that led to incidents like the Cuyahoga river becoming so polluted it caught fire.

The second point is that state governments and local authorities have traditionally been slow to regulate because they believe that this will encourage firms to relocate their operations, reducing local employment and tax revenues. It should be noted, however, that a recent study by the OECD found that environmental regulation had no significant impact on business competitiveness or the tendency of industry to relocate its operations.[21] This suggests that the anti-regulation discourse and perception of the relocation threat are more powerful than the actual effect.

Local authorities are also often reluctant to divert funds from politically popular projects into environmental intervention. This is why the waste-water treatment plant construction program faltered throughout the 1950s.[22] Given both the perceived interest of business to pollute and the reluctance of State and Local authorities to regulate, it is unlikely that the sharp increase in expenditure on environmental protection measures during the last three decades would have occurred without some form of Federal environmental regulation.

The next issue is whether this industry expenditure has been effective? Standard economic texts argue that government actions that lead to an imposition of extra

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[19] US EPA [2], *Creating a US Environmental Protection Agency That Works Better and Costs Less: Phase I Report, National Performance Review*, (EPA Washington DC, December 1994), p. ET4.

[20] National Commission for Employment Policy, *Environment and Jobs: The Employment Impact of Federal Environmental Investments*, (NCEP Research Report No. 95-02, U.S. Government Printing Office, Washington D.C., April 1995), p. 17. Joanna D. Underwood, "Going Green For Profit", *EPA Journal*, (July-September 1993), Volume 19, Number 3, pp. 9-13. Peter Cebon, "Corporate Obstacles to Pollution Prevention", *EPA Journal*, (July-September 1993), Volume 19, Number 3, pp. 20-22

[21] OECD, "Environmental Policies and Employment", report to the *Meeting of OECD Environment Policy Committee at Ministerial Level*, (http://www.oecd.org/news_and_events/reference/nw96-15a.htm), Paris, February 19-20, 1996, paragraph 13.

costs (such as taxes and charges) on industry will shift the supply curve upwards and lead to a net reduction in the aggregate consumer and producer surplus. This effect is often labelled a "dead weight loss" or "excess burden" because it shifts the market away from the optimal allocation of resources.[23] Such a loss is of concern in countries like the US because it has been estimated that during the 1990s industry will spend US$1.6 trillion meeting environmental regulations, culminating in about 2.8% of GDP per annum by the year 2,000.[24] Passing on the extra cost to consumers will also raise equity issues because the relative burden for the poor will be greater than for the rich.[25]

Environmental intervention by the EPA has taken many forms: command and control regulations (technology specifying or pollution standards), charges (for waste disposal or environmental taxes), tradeable pollution permits, compulsory environmental audits and public disclosure of waste levels (under the Toxics Release Inventory), pollution prevention programs, and cooperative pilot projects. Those actions which impose costs on industry without generating an offsetting income, such as command and control regulations and charges, will lead to a dead weight loss situation.

Regulations that specify the technology to be used to reduce pollution when there are more effective ways of achieving the same goal have been the most criticised from an economic point of view. The example cited in chapter four of the SO_2 emission rules under the 1977 Clean Air Act Amendments and its impact on the power industry is a case in point. In this instance the desired reduction in SO_2 emissions could have been achieved by switching to low sulphur coal. Instead, the regulations required the installation of chimney scrubbers at an estimated cost of

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[22] Joseph Petulla, *Environmental Protection in the United States: Industry, Agencies, Environmentalists*, (San Francisco Study Center, University of San Francisco, 1987), pp. 42-44.

[23] Karl Case & Ray Fair, *Principles of Economics*, (Prentice-Hall, New Jersey, 1989), pp. 450-55. Roger Waud, Anthony Hocking, Philip Maxwell, & Josef Bonnici, *Economics*, (Australian Edition, Harper & Row, Sydney, 1989), pp. 544-52.

[24] Louis Richman, "Bringing Reason to Regulation", *Fortune*, (October 19, 1992), Vol. 126, No. 8, pp. 94-5.

[25] Janna Thompson, "Sustainability, Justice and Market Relations", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), pp. 275-77.

US $4 billion to the industry.[26] The agency has recognised such problems and moved away from technology specifying regulations towards more flexible standards and economic instruments.

One thing that mitigates against the dead weight loss argument is the concept of environmental damage as a negative externality. That is, a cost generated by the activities of a firm that is borne by other people or organisations.[27] In the case of environmental damage, for example, a firm may emit SO_2 as a by-product of its industrial process that damages the crops of nearby farmers and affects the health of members of the local community. The costs of the pollution are borne by the farmers drop in income from a reduced yield and the increased health care costs of local residents. Government actions that increase costs for firms that emit SO_2 fumes while subsidising farmers and health care will therefore work to internalise some of this externality.

There is still a problem, however, in that the level of cost imposed on the firm is unlikely to be the same as the cost of the externality.[28] Even when the costs of production are deliberately increased by pollution charges and taxes, the amount of money paid by the firm has usually been too low to internalise the full environmental and social costs or provide an incentive for a change in industry's behaviour.[29]

This raises the fourth and final issue of how effective the EPA has been at inducing environment protection expenditures? An indication can be gleaned from the ratio of the money spent on the agency compared to the amount of expenditure it induces in environment protection by industry. Consider the EPA's

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[26] Howard, p. 34.

[27] Waud, et. al., pp.554. Case & Fair, pp. 383-91.

[28] Eckersley, p. 14. Alan Moran, "Tools of Environmental Policy: Market Instruments versus Command-and-control", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 81.

[29] Eckersley, p.14. Michael Jacobs, "Sustainability and 'the Market': A Typology of Environmental Economics", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 58. Peter Kinrade, "Towards Ecologically Sustainable Development: The Role and Shortcomings of Markets", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 90.

1995 budget of US $7 billion. Even with the most conservative figures cited, the total expenditure by industry was at least US $86 billion. Averaged over the lifetime of its operation, the EPA's budget constituted about 13% of the total Federal, State, and Local government expenditure on the environment.[30] Based on these figures, it would therefore be reasonable to assume that the EPA directly induced at least US $11.2 billion (13%) of industry's expenditure on environment protection. This means that for every dollar spent on the EPA, $1.60 was spent by industry per annum. If the higher figures cited by the EPA are used (US $150 billion) each dollar induces $2.80 expenditure by industry.

On the one hand, this approach may tend to understate the EPA's impact since many State and Local programs originate from EPA initiatives, so the agency is probably responsible for more than 13% of industry investment. On the other hand, the effect will tend to be overstated because industry often overstates its expenditure on environmental protection measures. One clear example of this overstatement was given in chapter 4 and related to the 1982 "stretch-out" provisions for compliance of the Steel industry under the Clean Air Act that encouraged firms to give a realistic quote of their compliance costs in order to gain an extension on deadlines. With this new incentive compliance expenditure fell from the initial industry estimate of US $500 million to an actual cost of US $49.4 million.[31] The tendency for overstatement due to inflated industry cost claims may be offset to some extent by the understatement of the EPA's contribution to local and state government action.

All of this suggests that the EPA has been able to redirect at least some of the flow of capital and revenue resources through the industrial institutions of US society, however, the total resources devoted to the EPA (US $7 billion) and the estimated environmental protection expenditure it induces (US $11.2-19.5 billion) is very small in comparison to the total Federal budget expenditures (US $ 1,461

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[30] Figure cited for 1987 in US EPA [3], *A Preliminary Analysis of the Public Costs of Environmental Protection: 1981-2000,* (EPA Office of Administration and Resources Management, Washington DC, May 1990), p. 10.
[31] Landy, pp. 227, & 229-230.

billion) and the size of the whole economy (US $7. 247 billion GDP).[32] The raw figures may overstate the EPA's effectiveness because of the possibility of dead weight loss and the risk that money spent on environment protection may not have been utilised in the most efficient way.

In terms of redirecting the flow of labour, the EPA has had two impacts. First, given the rise of the pollution abatement industry, a notable re-deployment of the work-force to this sector has occurred as new jobs have been created and others lost. If poorly designed command and control regulations generate a dead weight loss, there will be a decline in production that will reduce the quantity of both production and employment in particular industries. While 38,899 jobs were lost in the US due to environmental regulation from 1970 to 1984, there were 105,000 created by the water treatment construction program and a further 43,900 in pollution equipment industries in 1983 alone.[33] It was calculated in 1995 that environmental regulations had actually saved industry money in reduced raw material wastage, created 68-90,000 jobs, and added about US $3.7 billion to GDP.[34] This data suggests that more jobs have been created by the stimulus provided to the economy by environmental regulation that led to the development of pollution abatement industries than have been lost due to the extra costs imposed on polluting firms.

The other way the EPA affects labour is through employee education programs. Several such programs have been adopted under the pollution prevention policy, one is the Partnership for Environmental Technology Education (PETE) mentioned in chapter three. The objective of this program is to work with industry to train employees in relevant environmental skills, particularly those working in pollution control.[35] While it is difficult to quantify the overall impact of programs

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[32] Central Intelligence Agency, *World Factbook 1996.*

[33] Organization for Economic Cooperation and Development, *Environment and Economics,* (Results of the International Conference on Environment and Economics, Paris, 18-21 June 1984), pp. 69 & 93.

[34] The National Commission for Employment Policy, *Environment and Jobs: The Employment Impact of Federal Environmental Investments,* (NCEP Research Report No. 95-02, U. S. Government Printing Office, Washington D. C., April 1995), pp. 19-27.

[35] John Wise, "Partnership for Environmental Technology Education", (Paper presented to the Second Semi-Annual Resource Instructor Conference, Las Vegas, February 21, 1992) pp. 3-5.

such as PETE, it is apparent that the EPA has been influential in re-deploying and re-skilling part of the American work-force. This is in line with the capital and revenue analysis.

Under the trans-structural account of power, the final element in the redirection of resources should be knowledge. This is the most difficult factor to assess. Programs like PETE do inject new knowledge and discourses into an industry's workforce, but the most prominent and successful redirection of knowledge has been the Toxics Release Inventory.[36] As stated in chapter four, the idea behind the inventory was to redirect knowledge to the community and business executives as well as construct an external incentive for change through public/consumer pressure and the corporate awareness of waste. The inventory was supported by labour, environmentalists, community groups, State and Local governments, but was opposed by industry.[37] Despite its limitations, the inventory has been successful in putting pressure on industry to reduce its use and emission of toxic substances, with a reduction of 46% in reported releases over 8 years.[38]

Using the trans-structural account of power as a starting point it is clear that the EPA was able to redirect the flow of natural, capital, revenue, labour and knowledge resources. However, given the limited reach of the agency the total impact was patchy and small in the context of the total US economy.

The Four Methods Compared

While none of the techniques discussed are perfect, the analysis of the first three approaches reveal the way that different methods can be deployed to suit different political agendas. Method one is favoured by the critics of the EPA because it ignores the relative difficulty of goals set and the limited resources granted in

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[36] Robert Gottlieb, Maureen Smith, Julie Roque & Pamela Yates, "New Approach to Toxics: Production Design, Right to Know, and Definition Debates," in Gottlieb (ed), *Reducing Toxics: A New Approach to Policy and Industrial Decision Making,* (Island Press, Washington, D. C., 1995), pp. 131-132.

[37] Gottlieb, pp. 133-135.

[38] F. Henry Habicht, "Strategies for Meeting Our Goals", *EPA Journal,* (September/October 1990), Vol. 16, No. 5, p. 10. John Wise, p. 4. Underwood, p. 12. US EPA, *Toxics Release Inventory 1995 Summary*, pp. 6 & 15.

order to claim that the agency has failed. Method two is used by the agency to claim success on the basis of selective and uncertain data. Method three is preferred by theorists who wish to argue that no one institution is able to dominate US society. The trans-structural approach is able to reinterpret the data used in these methods and show that the agency had some qualified success despite being systematically constrained.

Comparing all four methods generates a clearer picture of the effectiveness and power of the EPA. While the goals set by Congress were not met because they were unrealistic, the EPA did not perform as well as the selected environmental indicators suggest. The agency has had a positive impact on environmental quality and has redirected part of the flow of resources through American society, but its achievements have been constrained by the context of hostile business discourses, competing state institutions, externally constructed incentives to pollute, and the warping of the web of relations/discourses. While agency actions have ameliorated some of the impacts of industry on society and the environment, the improvements are nowhere near what is needed to avoid severe problems. The world cannot afford to have US industry using ever more non-renewable resources, emitting larger amounts of greenhouse gases, and releasing millions of tonnes of toxic chemicals every year.

2) Discourse & the Benefits of Regulation

It has been the habit of many business leaders and anti-EPA politicians to argue that environmental regulation causes job losses.[39] Command and control regulations are often singled out for criticism because of the predicted dead weight loss effect.[40] On the micro-level, the increased costs associated with

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[39] See, for example, the comments by President Ford that demonstrate his mistaken belief that EPA regulation forced the closure of steel plants in Gary Indiana (mentioned in chapter 4): Gerald R. Ford, The President's News Conference of May 3, 1976, in *Public Papers of the Presidents of the United States: Gerald R. Ford, 1976-77*, vol. II, (National Archives and Record Service, Washington, 1977) pp. 1442. Landy, p. 206, argues that these plants would have closed anyway, regardless of whether the EPA had intervened.

[40] The argument often revolves around the need for flexibility. Robert Hahn, "Economic Prescriptions for Environmental Problems: Lessons from the United States and Continental Europe", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p.p. 130-31. Alan Moran, "Tools of Environmental Policy: Market Instruments

compliance are seen as a drain on money that could otherwise be invested in expanding production and employment.[41] On the macro-level, it is claimed that the regulations will inevitably impose higher production costs on industry, reduce competitiveness, and encourage investment to move off-shore.[42]

Contrary to the discourses that utilise these arguments, environmental regulation does not necessarily lead to a net reduction in overall employment. In some instances they may shift resources between different sections of the economy.[43] For more than a decade studies by the OECD have consistently demonstrated that in economies working below full capacity, the short run effect of environmental regulation is to increase employment and add to GDP. They also generate tangible benefits such as avoiding damage to the health, private property and ecosystems that exceed the costs imposed.[44] These findings have been confirmed by other studies and organisations.[45] This does not mean that there are no poorly designed command and control regulations that cause a dead weight loss and reduced employment in some specific instances. Even a critical review of the US EPA in 1995, however, admitted that substantial financial benefits had accrued from regulating air and water pollution.[46]

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versus Command-and-control", in Robyn Eckersley (ed.), *Markets, The State and the Environment,* (Macmillan, Melbourne, 1995), pp. 73-75 & 82-84.

[41] Fraas, Arthur, "The Role of Economic Analysis in Shaping Environmental Policy," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], pp. 113 & 125.

[42] This argument is canvassed and criticised in Robyn Eckersley, "Markets, the State and the Environment: An Overview", in Robyn Eckersley (ed.), *Markets, The State and the Environment,* (Macmillan, Melbourne, 1995), p. 14.

[43] Grabosky, Peter, "Governing at a Distance: Self-regulating Green Markets", in Robyn Eckersley (ed.), *Markets, The State and the Environment,* (Macmillan, Melbourne, 1995), p. 204.

[44] Organisation for Economic Cooperation and Development, *Environment and Economics,* (Results of the International Conference on Environment and Economics, Paris, 18-21 June 1984), pp. 67-68 & 93; see also OECD "Environmental Policies and Employment", summarised by the *Meeting of OECD Environment Policy Committee at Ministerial Level,* [http://www.oecd.org/news_and_events/reference/nw96-15a.htm], 19-20 February, 1996, paragraphs 12-13; and World Commission on Environment and Development, [with additional material from The Commission for the Future], *Our Common Future,* Chair Gro Harlem Brundtland, (Australian Edition, Oxford University Press, Melbourne, 1990 [original: 1987]), p. 255.

[45] See for example the National Commission for Employment Policy, *Environment and Jobs: The Employment Impact of Federal Environmental Investments,* (NCEP Research Report No. 95-02, U.S. Government Printing Office, Washington D.C., April 1995), pp. 21-23.

[46] National Academy of Public Administration, *Setting Priorities, Getting Results: A New Direction for EPA,* (NAPA Report to Congress, Washington, D.C., April 1995), pp. 20-21.

In some situations environmental regulations have given US industry a competitive advantage. Currently the world market for pollution abatement technology is around US $300 billion and growing. Half of this is spent in the US.[47] The tighter environmental laws adopted by the American government during the 1970s gave industry an incentive to develop pollution abatement equipment and cleaner production technology that gave them a competitive advantage in the global market.[48] Later, as other countries began to tighten their environmental standards, overseas firms started to import this technology from the US. This created a lucrative American export industry. When environmental regulation stalled during the Reagan administration, the incentive to innovate was reduced and many US exporters lost ground to their overseas rivals.[49]

As cited earlier, the US National Commission for Employment Policy found that environmental regulation had added US $3.66-3.71 billion to American GDP and created 68,600-80,400 jobs in 1994 alone.[50] This study included both command and control regulations and cooperative programs that have helped US industry to reduce costs and operate more efficiently. The logic behind this is quite simple. Pollution is a by-product that costs money to dispose of and represents a non-profitable use of raw materials. Therefore it is an indicator of inefficiency and a net cost to firms, especially if the state forces the internalisation of pollution costs.

By actively promoting more efficient production technology, the EPA is attempting to alter the predominant discourse of industrial institutions so that they realise how much money they are literally pouring down the drain with their waste streams. It has been estimated that American industry could save US $1.2 trillion dollars and create 1.1 million jobs over the next 15 years by cutting 1.3

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[47] US EPA, *Creating a US Environmental Protection Agency That Works Better and Costs Less: Phase I Report, National Performance Review,* (EPA Washington DC, December 1994), p. ET-4.

[48] Peter Grabosky, "Governing at a Distance: Self-regulating Green Markets", in Robyn Eckersley (ed.), *Markets, The State and the Environment,* (Macmillan, Melbourne, 1995), pp. 204. Robyn Eckersley, "Markets, the State and the Environment: An Overview", in Robyn Eckersley (ed.), *Markets, The State and the Environment,* (Macmillan, Melbourne, 1995), p. 32.

[49] National Commission on the Environment, *Choosing a Sustainable Future,* (Island Press, Washington D.C., 1993), p. 79.

[50] National Commission for Employment Policy, p. 27.

billion tons of waste from production processes.[51] The arguments for pollution prevention are in complete contrast to the traditionally perceived interest to pollute. This demonstrates the power and importance of discourse.

Regulation can also provide vital information for firms regarding their efficiency. The creation of the Toxic Release Inventory forced many US firms to audit their processes for the first time and many were shocked to discover how much raw material was being wasted. This generated an incentive to lift their performance in order to save money and improve their public image. As a result, firms benefited from the knowledge generated by the inventory, despite the fact that they resisted its creation.[52] This suggests that clever state intervention can help firms construct an interest in reducing pollution.

It appears that some American industries are aware of the benefits of government intervention. This was illustrated when industry representatives on the President's Council for Sustainable Development publicly supported the maintenance of federal environmental regulation in the face of Republican's moves to reduce them. Industry argued that the network of command and control regulations should be improved but not scrapped. Further, they supported moves to boost funding for cooperative federal environmental programs.[53]

All of this data suggests that state intervention is necessary to promote a pollution prevention discourse in industry in order to provide a net benefit to both the economy and the environment. Further, to compete as an exporter in the world market, industry will need the higher standards, knowledge and efficiency generated by well targeted national environmental regulation.

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[51]National Commission for Employment Policy, p. 19.

[52] Robert Gottlieb, Maureen Smith, Julie Roque & Pamela Yates, pp. 137-139.

[53] President's Council on Sustainable Development, *Final Report,* [http://www.whitehouse.gov/WH/EOP/pcsd/Council_report], March, 1996, pp. 25-57; and John Cushman, "Adversaries Back the Current Rules Curbing Pollution," *New York Times,* (Monday, February 12, 1996), pp. A1 & C11.

3) Institutional Priorities, Co-ordination & Learning

Three main points arise from the US EPA experience that are particularly pertinent for the structure and discourses that guide state institutions. First is the need for better coordination between departments. Second is the need for institutions to develop the capacity to learn and adapt to new problems. Third is the need for agencies to set priorities that align their internal offices to generate a sense of purpose.

The need for different government departments to coordinate their efforts was a consistent feature of analyses of the effectiveness of state intervention.[54] When different departments pull in opposite directions a lot of effort is wasted and little is achieved. One striking example was the US Department of Agriculture's continued demand for the use of EDB on some imported produce after the US EPA had banned the chemical as a soil fumigant.[55] Resources were wasted by both organisations trying to push industry in opposite directions. A related point is that it is unrealistic to expect one agency to be capable of dealing with all environmental issues.[56] What is required is a concerted effort by all arms of the state as well as a genuine commitment by industry and the community.

The National Commission on the Environment suggested that every US government department should have a senior environmental manager to guide its operations so that it pushed the sector for which it was responsible towards sustainability. It was also suggested that the US EPA play a coordinating role in

[54] Marc Landy, Marc Roberts & Stephen Thomas, *The Environmental Protection Agency - Asking the Wrong Questions: from Nixon to Clinton,* (Expanded Edition, Oxford University Press, New York, 1994), p. 318; Robert V. Percival, "Checks Without Balance: Executive Office Oversight of the Environmental Protection Agency," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, *Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics,* symposium held at Duke University Law School, November 15-16, 1990], pp. 180; National Academy of Public Administration, p. 83; President Bill Clinton and Vice-President Al Gore, *Reinventing Environmental Regulation,* (US Government, Washington DC, March 16, 1995), pp. 4 & 8-13.
[55] Walter A. Rosenbaum, *Environmental Politics and Policy,* (Second Edition, Congressional Quarterly Inc., Washington DC, 1991), p. 92.
[56] US EPA, *Sustainable Development and the Environmental Protection Agency: Report to Congress,* (Policy Planning and Evaluation, Washington DC, June 1993), pp. 3-4.

implementing a proposed national environmental strategy.[57] If these moves were able to generate a consistent environment and development guiding discourse across all state institutions, coordination problems would be greatly reduced.

The second lesson of the US experience is the need to give institutions the ability to learn and blend various forms of expertise into their decision making. One study of the EPA suggested that good government requires institutions to build a capacity to learn and rationally debate major issues. It endorsed the notion of multi-disciplinary teams and suggested that agencies should be networking to generate better coordination.[58]

The notion that institutions learn in order to identify and solve problems has been explored by Ernst Haas in his study of international organisations. He suggests that organisations need to build in the capacity to learn by utilising a consensus of expert knowledge. This knowledge is provided by a community of professionals (an "epistemic community") who work with or inform the organisation.[59] Within the US EPA, multi-disciplinary working parties are used to develop new regulations. These parties work in consultation with all the relevant offices of the agency through their "Red-Border Review" process. The result is to mobilise an institutional intelligence greater than that of any one participant. The main problem with this approach is that it is very time consuming and has been by-passed on occasions.[60] More effective state institutions will therefore need to establish routines that both blend expertise and speed up decision making.

The final lesson is, that to be effective, an environment agency has to have a clear set of priorities drawn from a consistent discourse about the nature of environmental issues, industrial development, and the role state institutions. This discourse should align all parts of the institution and may be embodied in a

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[57]National Commission on the Environment, pp. 46-48.

[58] Marc Landy et. al., pp. 9-14, & 329-330.

[59] Ernst Haas, *When Knowledge is Power: Three Models of International Organisations,* (University of California Press, Berkeley, 1990), pp. 17-46.

[60] Thomas O. McGarity, "The Internal Structure of EPA Rulemaking," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, *Assessing the Environmental*

comprehensive mission statement and strategic plan.[61] The object of these documents is to allow agencies to act as a more coherent whole and define an appropriate place in the public sector. It has been suggested that considering its role in sustainable development could help the US EPA define an appropriate mission and strategic plan.[62] Without an effective supporting discourse, however, such plans will languish from a lack of commitment.

In sum, the lessons for the state agencies come down to the need to make the most effective use of scarce and diminishing public sector resources at a time when any state activity is viewed with suspicion. Intervention has to be clever, well focused and in accord with the actions of other agencies. This cannot be achieved with disunity within and between state institutions. It may be possible through the dissemination of unifying discourses, restructuring to encourage institutional learning, and establishing intelligent regulatory routines.

Conclusion

It is apparent that traditional methods of analysis inherit flaws from the particular political discourses that promote them. These flaws can be identified by trans-structural analysis and compensated for using comparative techniques.

It is apparent that the US EPA has been more successful than its critics would allow but has performed below its full potential because of the context of structural constraint. This context is constructed by the warping of the web of force relations/discourses that constitute the fabric of society to favour perceived business interests. Such warping is due to the concentration of the capacity to redirect resources in the hands of a relatively few large business institutions. The degree of warping is indicated by the level of divergence between the theoretical powers of the agency outlined in chapter three and what was actually achieved in the cases analysed in chapter four. It was also evident during the Reagan

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Protection Agency After Twenty Years: Law, Politics, and Economics, symposium held at Duke University Law School, November 15-16, 1990], pp. 61, 71-90 & 95-96.
[61] National Academy of Public Administration, p. 140.
[62] National Commission on the Environment, pp. 1-2 & 46-50.

administration when the executive of the EPA was more concerned with protecting business interests than in protecting the environment.

The analysis presented here suggests that although this warping favours business in general, it does not entirely extinguish the power of state agencies to redirect the flow of resources through society. Given the ubiquitous power and general reluctance of industry to address environmental issues, society will need strong state institutions and interventions that are able to circumvent the apparent structural disadvantages. This requires better institutional structures, discourses, coordination and learning routines. It will also be necessary to alter the discourse of business institutions and construct a perceived interest in environment protection. Otherwise the capacity of recalcitrant industry to resist effective state action will significantly impede progress. The rise of discourses and institutions centred on sustainable development may provide an opportunity to improve the effectiveness of such intervention. Chapter six will develop this point further.

Chapter Six

From EPA to ESD and Back

Introduction

By the 1980s, constant business resistance to environmental protection and green critiques of capitalism generated an incentive for the state to find some way to reduce the tension between the environmentalists and industry. In the USA, piecemeal legislation had given way to new state institutions as a concession to the new environmental discourse yet issues continued to grow in number and complexity. In Australia, a patchwork of Commonwealth and State initiatives were becoming increasingly strained by inter-jurisdictional fights and the electoral impact of green politicians. It was into these domestic political environments that the rapidly evolving international discourse on sustainable development was injected.

Sustainable development appeared to offer a way out of the jobs versus conservation impasse. On the one hand, it professed to take environmental issues seriously and incorporate an ecological perspective into institutional decision making routines. On the other hand, it claimed that both the existing institutions of power and industrial-based economic growth could be sustained if sufficient care was taken. This discourse avoided the anti-technology, anti-industry, and anti-economic growth arguments that had begun to appear in environmental discourses of the 1970s. It also created a new means to legitimise both industrial development and state intervention, while offering a coordinated approach to environmental and social issues. This is why it quickly became popular with national governments and, later, business.

This chapter analyses the emergence and adaptation of sustainable development as a policy goal in the USA and Australia. Section one outlines a brief history of sustainable development discourses internationally. Section two derives a

theoretical model of sustainable industry. Section three traces the policy debate in the US and the difficulty of defining a role for the EPA. Section four reviews the Australian response that led to new national environment protection institutions.

Overall, this chapter explores the way that, despite the potential of the original concept, subsequent official sustainable development discourses have become a means to reconstruct environmental issues so that they no longer pose a challenge to the existing institutions of power. The aim is no longer to sustain the planet but to sustain dominant institutions. Despite these political manoeuvres, considerable merit still remains in a more rigorous model of sustainable industry.

1) The Origins of Sustainable Development Discourse

Although the label "sustainable development" has only recently become popular, the discourse to which it refers has been around for some time.[1] In 1970 the UN released its *International Development Strategy* that claimed "the ultimate purpose of development is to provide increasing opportunities to all people for a better life" and this entailed the need to "safeguard the environment".[2] The strategy preceded the 1972 UN *Conference on the Human Environment* in Stockholm which discussed the perceived environmental danger of a rapidly industrialising Third World.[3] As concerns about the impacts of industrial development in both rich and poor countries grew, the green movement constructed international organisations that began to gain support from some parts of the scientific and economic epistemic communities.

In 1980 a joint project between the UN and two international green organisations produced the *World Conservation Strategy*. This document brought the label of "sustainable development" into the international policy discourse, defining it as

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[1] Elim Papadakis points out that Australian foresters at the turn of the century talked about the need to "conserve resources for use by future generations" in *Politics and the Environment: The Australian Experience*, (Allen & Unwin, Sydney, 1993), p. 105.
[2] As quoted in: The US Department of State, *Safeguarding Our World Environment: The UN Conference on the Human Environment, Stockholm, June 1972*, (US Department of State Publications, Washington D. C., 1972) p.19.
[3] US Department of State, p. 28.

"the sustainable utilisation of species and ecosystems".[4] This approach to environmental issues was more palatable to industrial societies than the more radical green critiques and in 1983 the UN established the World Commission on Environment and Development to flesh out the discourse. The objective, under the direction of Gro Harlem Brundtland, was to propose ways to reconcile industrial development with environmental concerns. Chatterjee and Finger suggest that another function of the commission was to use environmental issues as a means to open up a new East-West dialogue that might ameliorate Cold War tensions.[5]

In 1987 the Commission released its findings under the title *Our Common Future*, commonly referred to as the Brundtland report. This document addressed three main issues. First, it reiterated the catalogue of environment and development concerns. Second, it defined and promoted sustainable development as a solution to these problems. Third, it proposed a broad strategic framework by which sustainable development might be achieved.[6]

Prior to the Brundtland report, the predominant business discourse on the "problem" of the environment and state intervention had been constructed as an exclusive disjunction: *jobs versus environment protection*. That is, either you allow the exploitation of the environment to create jobs or you protect it and lose jobs, but you cannot have both. Chapters 3 and 4 demonstrated that despite a growing body of evidence contradicting this claim, it remains part of the popular discourse about disputes over specific projects and environment policy as a whole. Jobs provided by a specific project are tallied up by opponents of regulation and weighed against the less tangible environmental benefits of protection. In the background is the concern that jobs may move off-shore if environmental regulations get too tight.

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[4] International Union for the Conservation of Nature and Natural Resources [IUCN], the World Wildlife Fund and the United Nations Environment Programme, *World Conservation Strategy*, (UN publications, Geneva, 1980), p. vi.
[5] Pratap Chatterjee and Matthias Finger, *The Earth Brokers : power, politics, and world development*, (Routledge, London 1994), p. 80.

The Brundtland report attempted to use the discourse of sustainable development to reconstruct the environmental "problem" so that the exclusive disjunction becomes an inclusive conjunction.[7] The first step is to re-define the elements within the *jobs versus environment protection* formulation. The term *jobs* is replaced by the broader notion of *development* that can embrace economic activity that is beneficial to the environment (eg. recycling). *Environment protection* is replaced by *ecological sustainability* that does not seek to maintain a pristine environment, but merely tries to limit damage to a level and kind that can be borne by the environment in the longer term. Environmental issues are then reconstructed as a challenge to achieve both *development and ecological sustainability*. This inclusive conjunction is an attempt to head off the confrontation of environmental issues by constructing a perceived common interest in both a healthy economy and a healthy environment.[8]

The next step is to establish a link between development and ecological sustainability which validates this logical conjunction. The Brundtland report attempts this via two lines of reasoning. First, it is argued that development depends on a healthy environment because it requires "access to resources" in the long term and uses "the ability of the biosphere to absorb the effects of human activities".[9] This argument is relatively straightforward.

The second line of reasoning argues that ecological sustainability depends on industrial development. This is a more dubious claim since many problems have arisen directly from industry's use of the environment. The Brundtland report attempts to use poverty as the link. It argues that poverty causes damage by generating an incentive to over-exploit the environment for survival. It is suggested that if industrial development alleviates poverty, the pressure on the

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[6] World Commission on Environment and Development [WCED], [with additional material from The Commission for the Future], *Our Common Future,* Chaired by Gro Harlem Brundtland, (Australian Edition, Oxford University Press, Melbourne, 1990), p. xiiv.
[7] WCED, p. 8.
[8] WCED p. 87.
[9] WCED, pp. 8 & 87.

environment will be reduced.[10] The alleviation of poverty is constructed as a necessary condition for sustainable development.

One difficulty with this approach is that there are many other causes of environmental damage that need to be taken into account, such as: the deployment of harmful technology, economically driven over-consumption, social norms that encourage resource exploitation, and inappropriate government policies. The report implicitly acknowledges these other causes in the way it attempts to define sustainable development.

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:
> - the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
> - the idea of limitations imposed by the state of *technology* and *social* organisation on the *environment's* ability to meet present and future needs.
> Thus the goals of *economic* and social development must be defined in terms of sustainability in all countries - developed or developing, market-oriented or centrally planned. Interpretations will vary, but must share certain general features and must flow from a consensus on the basic concept of sustainable development and on a broad strategic framework for achieving it.
>
> Development involves a progressive transformation of economy and society. A development path that is sustainable in a physical sense could theoretically be pursued even in a rigid social and *political* setting. But physical sustainability cannot be secured unless development policies pay attention to such considerations as changes in access to resources and in the distribution of costs and benefits. Even the narrow notion of physical sustainability implies a concern for social equity between generations, a concern that must logically be extended to equity within each generation.[11]

The emphasis on key-words has been added to highlight the five dimensions of development that have an impact on society and the environment (technical, economic, social, political, and ecological). Together they constitute a comprehensive set of categories that cover both the causes and dimensions of

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[10] WCED, pp. 6-8.
[11] WCED, p. 87, a similar passage occurs on p. 8.

environmental problems.[12] Having attempted to reconstruct the discourse on issues, the Brundtland report then attempts to reconstruct the role of industrial and state institutions to fit within this new discourse.

Environment Protection and State Institutions

After discussing the concept of sustainable development, the Brundtland report proposes a general strategic framework for its achievement (emphasis on key-words has again been added):

> - a *political* system that secures effective citizen participation in decision making,
> - an *economic* system that is able to generate surpluses and technical knowledge on a self-reliant and sustained basis,
> - a *social* system that provides for solutions for the tensions arising from disharmonious development,
> - a production system that respects the obligation to preserve the *ecological* base for development,
> - a *technological* system that can search continuously for new solutions,
> - an international system that fosters sustainable patterns of trade and finance, and
> - an administrative system that is flexible and has the capacity for self-correction.[13]

The first five parts of the strategy are attempts to address directly the five dimensions of development that cause environmental problems. The last two, the "international" and "administrative" systems can be subdivided into the relevant political and economic categories. Clearly these were designed to extend the notion of sustainability beyond national boundaries while maintaining a central role for the state.

The report notes the limitations placed on the state's ability to achieve desired policy goals and acknowledges that any strategy will be constrained by the willingness of trans-national corporations to cooperate, particularly those that control and deploy new technology.[14] Although decisions about production are

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[12] These dimensions are implicit but recur throughout the Brundtland report. See: WCED, p. 8, 87, 109, 274-276, 305 &387.
[13] WCED, p. 109.
[14] WCED, pp. 132-133 & 275.

largely in private hands, state intervention is still proposed to ensure that companies behave as "good" corporate citizens.[15]

The report does not mention environment protection agencies by name but does suggest that: "Where the work-force and financial resources permit, national governments should establish clear environmental goals and enforce environmental laws, regulations, incentives, and standards on industrial enterprises."[16] This is exactly what the US EPA and its Australian counterparts were supposed to do.[17] Other suggestions about the form of appropriate interventions coincide with programs that have since been adopted by both countries.

> Product redesign and technological innovations leading to safer products, more efficient processes, and recycling of raw materials can also be promoted by a more effective, integrated use of economic incentives and disincentives, such as investment tax breaks, low-interest loans, depreciation allowances, pollution or waste charges, and non-compliance fees. [18]

Overall, the strategy proposed by the Brundtland report consists of a set of modest reforms that avoid calls for a more radical restructuring of society. It consists largely of promoting more careful national regulation of the market. Although the power of trans-national companies is noted, it is assumed that state intervention is still effective. This is why national environment protection institutions are given a key role in the achievement of sustainable development.

The Sustainable Development Legacy

One of the Brundtland report's recommendations was that an international conference on environment protection and sustainable development should be

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[15] WCED, p. 10.
[16] WCED, p. 266.
[17] See Richard Nixon, "Special Message to the Congress About Reorganisation Plans to Establish the Environmental Protection Agency and the National Oceanic and Atmospheric Administration", in *Public Papers of the Presidents of the United States: Richard Nixon, 1970,* (Item No. 215, National Archives and Record Service, Washington, July 9, 1971) pp. 578-586, and the Special Premiers' Conference, *Intergovernmental Agreement on the Environment,* (Australian Government Publishing Service, Canberra, May 1992), Schedule 4.
[18] WCED, pp. 263 & 266.

held by the UN.[19] This idea eventually led to the *Conference on Environment and Development* in 1992 (more popularly known as the Rio Earth Summit). The conference produced two framework conventions, a statement of principles, and a set of development guidelines called *Agenda 21*.[20] The Brundtland report also recommended a restructuring of UN Environment Programs, so the Rio summit agreed to establish the UN Commission for Sustainable Development to report on international progress and created the Global Environment Facility within the World Bank to fund sustainable development projects.[21] In 1997 the UN *Rio+5* conference found that international progress towards sustainable development was disappointingly slow.[22]

Over the last decade, sustainable development discourse has drawn a surprising cross-section of support from business, the greens and nation-states.[23] This consensus is largely superficial because the different political actors are agreeing to a label while maintaining different perceptions of the discourse. Sustainable development to some industries means simply a greener marketing image of business as usual, which explains the lack of progress on major environmental issues.[24] To radical green groups, true sustainable development means abandoning industrial production altogether. The Brundtland report is closer to the business position.

Sustainable development is not a panacea for the world's environmental woes and there are substantial critiques of the version promoted by Brundtland. First, it has been suggested that the Brundtland report over-emphasises poverty as a cause for

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[19] WCED, p. 377.
[20] United Nations Conference on Environment and Development, *Agenda 21*, [http://www.erin.gov.au/portfolio/esd/nsesd/Agenda21.html], 1992.
[21] Chatterjee & Finger, pp. 153-158.
[22] John Vidal, "World turning blind eye to catastrophe," *The Guardian Weekly*, (February 2, 1997), Vol 156, No. 5, p. 1. Christopher Flavin, "The Legacy of Rio," *State of the World 1997*, [http://www.worldwatch.org/pubs/sow/sow97/ch01.html], January 1997.
[23] See for example the positive responses to the Australian debate on ecologically sustainable development by people as diverse as: Ros Kelly [then federal Minister for Environment], Ian Hore-Lacey [Australian Mining Industry Council], John Kerrin [then federal Treasurer], Fred Chaney [then Shadow Minister for Environment], and Bill Hare [Australian Conservation Foundation], in *The Australian Quarterly*, (Summer 1991), vol. 63, no. 4.
[24] Tom Athanasiou, "The Age of Greenwashing," *Capitalism, Nature, Socialism*, (March 1996), Vol. 7, No. 1, pp. 1-36.

environmental damage, plays down the role of over-consumption by the rich, and fails to ask why this poverty and inequality is generated in the first place.[25] The report does tend to skirt around these issues.[26] Second, it tends to focus on industry and economic growth rather alternative production methods, quality of life, equity or redistribution.[27] The report mentions that extremes of both wealth and poverty are damaging to the environment but offers only modest proposals for minor wealth redistribution through the provision of welfare funded by taxation.[28] It does assume that industrial development should be universally pursued, which may not be appropriate if alternative or traditional institutions are already sustainable.[29]

A third criticism is that the report fails to challenge the power of existing institutions.[30] Some analysts have suggested that the Brundtland commission and the Rio Earth Summit were set up simply to protect existing state and business institutions, rather than address environmental issues.[31] This may be due to the fact that the document was prepared by political leaders under the influence of strong international business lobbying. On the right, economic rationalists argue that state institutions and intervention are defended too much. They point out that state run enterprises in Eastern Europe had a worse environmental record than business in the West, and conclude that the state is part of the problem, not the solution.[32] The US case study material presented in chapters 3-5 demonstrates that in the absence of state intervention, serious environmental problems were generated by industry. Further, industry has been reluctant to address environmental problems and has actively resisted change. This sort of data has led

[25] Broad, Robin, "The Poor and the Environment: Friends or Foes?", *World Development,* (1994), vol. 22, no. 6, p. 812-813.

[26] WCED, pp. 76, 84 & 88.

[27] Sharachchandra Lele, "Sustainable Development: A Critical Review", *World Development,* (1991) Vol. 19, No. 6, pp. 613-615. Paul Ekins, "'Limits to growth' and 'sustainable development': grappling with ecological realities", *Ecological Economics,* (1993), vol. 8, pp. 274, 276 & 280.

[28] WCED, pp. 91 & 139-140.

[29] Thijs De La Court, *Beyond Brundtland: Green Development in the 1990s,* (Zed Books, London, 1990), p. 13-14, 25 & 68.

[30] De La Court, pp. 118-119 & 135.

[31] Chatterjee and Finger, p. 3, 14, 27-29, & 129.

[32] Thomas J. DiLorenzo, "The Mirage of Sustainable Development", *The Futurist,* (September-October, 1993), pp. 15-18.

some critics on the left to claim that the Brundtland report does not go far enough in challenging market and business institutions.[33]

Despite these deficiencies, or perhaps because of them, the Brundtland version of sustainable development has significantly altered discourses about environmental issues at the international, regional, national, and local levels. As a consequence, the USA and Australia have shifted to a new phase of state intervention and attempted to construct new policy goals by adapting this discourse to their domestic situations. The result has been both a restructuring of existing state institutions in the US and the creation of new ones in Australia.

2) Sustainable Industry in Theory

Although the application of sustainable development principles to industry is not dealt with extensively, the Brundtland report does make several references to its importance for society.

> Industry is central to the economies of modern societies and an indispensable motor of growth. It is essential to developing countries, to widen their development base and meet growing needs. And though industrialised countries are said to be moving into a post-industrial, information-based era, this shift must be powered by a continuing flow of wealth from industry. Many essential human needs can be met only through goods and services provided by industry. The production of food requires increasing amounts of agrochemicals and machinery. Beyond this, the products of industry form the material basis of contemporary standards of living. Thus all nations require and rightly aspire to efficient industrial bases to meet changing needs.[34]

In short, industry is where resources are transformed into artefacts that fulfil human needs and wants. Although the Brundtland report recognises the social and economic importance of industrial production, it acknowledges the negative impacts of such activity on the environment.

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[33] Gilberto Gallopin, Pablo Gutman & Hector Maletta, "Global impoverishment, sustainable development and the environment: a conceptual approach", *International Social Science Journal*, (August 1989), vol. 41, pp. 377, 380 & 395.
[34] WCED, p. 250.

Industry extracts materials from the natural resource base and inserts both products and pollution into the human environment. It has the power to enhance or degrade the environment; it invariably does both.[35]

These impacts arise throughout the life-cycle of products and processes.

Industry and its products have an impact on the natural resource base of civilisation through the entire cycle of raw materials exploration and extraction, transformation into products, energy consumption, waste generation, and the use and disposal of products by consumers.[36]

Despite these problems, the report indicates some ways for industry to meet the criteria for sustainable development.

In general, industries and industrial operations should be encouraged that are more efficient in terms of resource use, that generate less pollution and waste, that are based on the use of renewable rather than non-renewable resources, that minimise irreversible adverse impacts on human health and the environment.[37]

The report notes that this is particularly important in the Third World, where industrial development is growing rapidly.[38] The overall emphasis (for both developed and developing countries) is to lower waste production and resource consumption, while promoting reuse and recycling.[39] It is acknowledged that this will be a difficult task.[40]

There is also the human factor of production. The Brundtland report includes proposals for more participatory decision making processes. This suggests that the report has been developed from a liberal-democratic discourse. In particular, it is suggested that local communities and non-government organisations should be involved in planning new industrial facilities.[41] Since many local residents will be employed by such developments, it would be logical to extend the requirement for participatory decision making to the workplace. That would mean promoting

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[35] WCED, p. 250.
[36] WCED, p. 252.
[37] WCED, p. 257.
[38] WCED, p. 259.
[39] WCED, p. 271.
[40] WCED, p. 257.

industrial democracy. Although this is not explicitly recommended by the report, it is a reasonable extrapolation of its principles and one promoted by Dryzek.[42]

If industrial production uses natural resources (like energy and raw materials), knowledge, labour and capital to generate revenue, products and waste, what would sustainable industry look like? The Brundtland report does not pursue this point in detail, but Jacobs has systematically pursued the concept. Jacobs recognised the vagueness of the Brundtland report's definition and attempted to clarify the concept by applying it to industrial economics.[43] His definition of sustainability is in accord with the underlying principles of the Brundtland report.

> Sustainability means that the environment should be protected in such a condition and to such a degree that environmental capacities (the ability of the environment to perform its various functions) are maintained over time: at least at levels sufficient to avoid future catastrophe, and at most at levels which give future generations the opportunity to enjoy an equal measure of environmental consumption.[44]

Jacobs identifies three economic functions provided by the environment:

> ... the provision of resources (raw materials and energy), the assimilation of waste materials, and the performance of environmental services. Such services include life support services such as climate regulation, geochemical cycling, and the maintenance of biodiversity; and amenities of various kinds, including aesthetic, health giving, recreational and scientific.[45]

I will divide these functions into two groups. The provision of resources will be treated as the input factors of production. The assimilation of wastes will be dealt with as the output factors. The impact of both upon environmental services will be addressed by a closer look at both groups.

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[41] WCED, pp. 91 & 275.

[42] Dryzek, John, "Ecology and Discursive Democracy: Beyond Liberal Capitalism and the Administrative State", *Capitalism, Nature, Socialism*, (June 1992), 3(2), issue 10, pp. 37 & 41.

[43] Jacobs, Michael, *The Green Economy: Environment, Sustainable Development and the Politics of the Future*, (Pluto Press, London, 1991), p. 59.

[44] Jacobs, pp. 79-80.

[45] Jacobs, p. 86.

Input Factors

Consider first the use of natural resources by industry. These can be either renewable (eg. wood) or non-renewable (eg. metal). According to Jacobs, renewable resources are used sustainably when the rate of use is less than or equal to the rate of their regeneration. The rate of regeneration can be increased by human activity (eg. establishing new tree plantations). The objective is to avoid extinction or depletion by maintaining a constant or growing resource stock.[46]

For non-renewable resources, the absolute stock of the resource is bound to diminish with any level of use but simply locking a resource away benefits neither current nor future generations. The inter-generational equity principle of the Brundtland report requires that future generations are no worse off than current generations. Therefore, Jacobs argues that the relative scarcity of any resource (that is the ratio of demand to available stock), should remain constant. This could be achieved by developing better technology, discovering new deposits, recycling or reusing existing supplies and gradually substituting renewable for non-renewable resources.[47] This would constitute sustainability. The sustainable use of energy is similar to other non-renewable resources since, at present, it is mainly derived from fossil fuels.

Some industrialists claim that exploration, improvements in technology and the substitution effect will work to prevent the depletion of non-renewable resources and negate the need to switch to renewable resources. They argue that what constitutes a resource is determined by the demands of the market. As a resource becomes scarce, its price rises. This generates an incentive for exploration and the use of previously economically marginal deposits. There is also an incentive to develop technologies that either use the resource more efficiently or substitute more readily available and cheaper alternatives. The conclusion is that there is always something to switch to if the market is allowed to rule.[48]

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[46] Jacobs, pp. 87-88.
[47] Jacobs, pp. 90-91.

Both Jacobs and Dryzek dispute these sorts of arguments on scientific grounds. According to the laws of thermodynamics, the use of any non-renewable energy source will increase the level of entropy (disorder) in the biosphere.[49] That is, the potential energy stored in non-renewable energy resources is due to the order imposed by chemical or nuclear bonds. When these bonds are broken by combustion or fission the potential is released. Power generators use this energy to do work but eventually it enters the biosphere as disordered, low potential energy (usually heat). This is not the case with renewable resources derived from solar power. They actually reduce the level of entropy by collecting an already diffuse energy source (sunlight).[50] Energy produced from non-renewable resources always increases the level of entropy on the planet regardless of technological innovation, exploration or the substitution effect.

Energy is particularly important to industry since it is the driving force of production. It is also important for sustainable development because it is needed for recycling processes.[51] To avoid the entropy problem and become sustainable, industrial production will eventually have to switch to renewable energy sources.

Jacobs does not say a great deal about labour as an input to production. He does suggest that substituting human labour for machines would reduce the problem of entropy (since humans are effectively powered by food originating from photosynthesis).[52] This proposal is problematic since it goes against the historical trend of replacing labour with capital. If industry used solar technology to power its processes this trend would not be a problem.

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[48] One example of this argument can be found in: Hore-Lacy, I., "A Mineral Industry Perspective on Sustainable Resource Use", *The Australian Quarterly*, (Summer, 1991), Vol. 63, No. 4, pp. 376-377.

[49] Jacobs, pp. 11-13 and John Dryzek, *Rational Ecology: Environment and Political Economy*, (Basil Blackwell, Oxford, 1987), p. 73.

[50] It should be noted that solar power is used here in its broadest sense and includes: photovoltaic cells; solar water heaters; windmills (that are driven by the atmospheric thermal differentials caused by the sun's heat); and renewable combustible fuels such as wood or alcohol (photosynthesized using the suns energy).

[51] Jacobs, pp. 112-113.

[52] Jacobs, p. 115.

Output Factors

In its attempt to generate revenue, industry creates two outputs: products and waste. Jacobs separates waste into two categories: flow waste and stock waste. Flow wastes (such as organic materials) are those which can be "assimilated by the natural environment through bio- and geochemical processes of dispersal, decomposition and recomposition."[53] The production of flow wastes is sustainable when the rate of assimilation by the local environment is greater than or equal to the rate of production. That is, when the quality of the local environment remains constant. If the rate of discharge is higher than the rate of assimilation, the flow waste builds up in the environment as pollution. Pollution and flow wastes that impair the provision of environmental services should be eliminated.

Stock wastes are those that cannot be assimilated by the environment. They are usually disposed of by storage, either in human constructions or natural mediums. Stock wastes that mar the provision of environmental services should be isolated until they can be converted into a form that the environment can assimilate. Ultimately industry should stop producing stock wastes.[54]

The same principles apply to industrial products. Their consumption should not reduce the quality of environmental services and they should be designed so that they can be reused, recycled after use or the environment can assimilate them after disposal.

A Composite Model of Sustainable Industry

A composite model of sustainable industry can be constructed by combining the principles identified by Brundtland with the ideas of Jacobs and Dryzek.[55] In formulating this ideal, I have also drawn on my own experience in industry. While the model outlined below conforms to the Brundtland principles, it goes

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[53] Jacobs, pp. 92-93.
[54] Jacobs, pp. 92-94.
[55] Some of this is covered by Jacobs, pp. 106-110.

considerably further than the sustainable industry policy goals developed in Australian and the US (as discussed in the rest of this chapter).[56]

Sustainable development is any productive activity that is technically feasible, economically viable, socially tolerable, politically acceptable and ecologically sustainable. Technical feasibility would affect both the input and output sides of manufacturing. On the input side, energy could be conserved by reducing unnecessary heat losses through insulation and better machine maintenance. In the short term, older machinery could be replaced with more energy efficient models. Inexpensive solar cells and wind generators could be installed to supplement energy needs. In the medium term, factories could install cogeneration plants that utilise the waste heat from electricity production. These could be fired by coal or natural gas initially and later be converted to biologically produced methane or alcohol. The carbon dioxide produced can be offset by establishing plantations that may also be sustainably harvested to provide the renewable fuel sources.

Non renewable resource inputs could be phased out in the longer term. Petroleum based plastics might be replaced with cellulose based alternatives. Metals could be reused, recycled or even replaced in some applications. Metal engine blocks, for example, might be replaced with ceramics, wood structures could take over metal frameworks in some applications (eg. domestic housing), and cellulose based plastics might replace some moulded metal work (eg. in motor vehicles). Plant extracts could be substituted for some petrochemicals in pharmaceutical products, solvents, surfactants and pesticides. Industry might also use more bio-technology to reduce its dependence on high energy processes and artificial chemicals.

The shift to these sorts of technologies would reduce the waste output of industry. Renewable energy resources balanced by growing plantations would not increase the net carbon dioxide content of the atmosphere, avoiding an exacerbation of the

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[56] See for example the Ecologically Sustainable Development Working Groups, *Final Report - Manufacturing,* (Australian Government Publishing Service, Canberra, November 1991), pp. 58-75, and the Administrator of the US Environmental Protection Agency, William K. Reilly, "The

greenhouse effect. The replacement of petrochemicals would eliminate many hazardous wastes and serious chemical spills. Reducing the use of metals (particularly replacing organometallic catalysts with biotechnology) would reduce heavy metal pollution. Most waste would be organic and could be recycled or assimilated. Bio-reactors could assist in large volume waste assimilation and might produce useful by-products (such as energy).

The products of sustainable industry would be designed for maximum energy efficiency, durability, reuse and recyclability. They would be made of materials that are bio-degradable and would require minimal packaging. Companies would seek to lower transportation costs by creating more compact products, locating their operations near markets, and using energy efficient transportation (eg. rail).

The next requirement is that sustainable industry be economically viable. In this case it must be an attractive proposition for investors to put money into a plant in Australia or the USA. Fundamentally this requires a strong revenue source flowing from sales of the product with the costs of production equal to or lower than competitors (both local and foreign). In terms of marketing, there is already a considerable body of a consumer demand for green products. Several companies have successfully capitalised upon this demand and have even been able to charge higher prices than their competitors (eg. the Body Shop). On the cost side, the technical innovations outlined above will generally reduce the variable costs of production by lowering raw material and energy use. There will be a rise in fixed costs because of the need for technological investment to upgrade existing plants. This investment will only happen if the rate of return from the reduction in variable costs (measured against the extra fixed costs) is above alternative investment yields. Some companies have already made such investments, suggesting that this sort of action is economically viable at least part of the time.[57]

Green Thumb of Capitalism: The Environmental Benefits of Sustainable Growth", *Policy Review*, (Fall, 1990), Vol. 54, pp. 16-21.

[57] A list of 93 companies partaking in such investment in Australia can be found in *The Environmental Investment Directory of Australia 1992*, (Politecon Publications, Asquith, NSW, 1992). The list includes large companies such as BHP and ICI, as well as many small and medium sized businesses. See also: Ross Knowles (ed.), *Ethical Investment*, (Choice Books, Sydney, 1998).

At the macro-economic level, OECD studies have found that investments in environmental technology can stimulate economies and generate net benefits.[58]

Overall economic assessments of projects will have to be modified to take into account the principles of sustainability. The need for inter-generational equity will have to override the tendency of cost-benefit analyses to discount future benefits. Each company would have to internalise the negative externalities of its operations by paying the full cost of its pollution and resource use. Accurate information about the environmental impacts of the production and use of all goods and services should be easily available to consumers. National GDP figures would have to deflated according to the depreciation (rate of use) of natural resource stocks.

In terms of being socially tolerable, sustainable manufacturing would have several benefits. It would add to the amenity of a community by providing jobs, reducing pollution related illnesses, and increasing the aesthetic and recreational value of the local environment. Sustainable industry would also provide safer working conditions by reducing people's exposure to hazardous chemicals. This could also reduce production costs by minimising the time and money lost due to industrial accidents. More participatory decision making structures may be less alienating to the workforce and would encourage innovation from the shop floor. This would respect liberal-democratic rights, improve employee morale, and may lead to an increase in productivity.[59]

The main social stumbling block appears to be the reticence of industrial leaders to implement the necessary changes. This may stem from a lack of belief in the cost effectiveness of the technical innovations or a reluctance to surrender managerial prerogatives to more participatory decision making structures. These obstacles are not insurmountable. There are already many businesses world-wide that have adopted more ecological and democratic principles. Industry in West Germany, for example, was the post-war economic success story of Europe, with

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[58] WCED, p. 255.

a high level worker participation and tight environmental regulations. As these examples gain prominence more managers may see what's possible and participate in the change.[60]

The political acceptability of sustainable manufacturing is more difficult to assess. The immediate political appeal of the Brundtland report (to countries like Australia and the USA) is that it seeks to perpetuate industry's use of the environment as a resource and encourages economic growth. These conform with existing political priorities. Further, although sustainable industry requires substantial modifications to production practices, it does not seek to abolish the existing institutions of power. These factors explain why sustainable development was more readily accepted as the basis for policy formulation than the zero growth proposals of the 1970s.

One of the politically sensitive issues is the redistribution of wealth required to meet the "essential needs" of the poor first.[61] As has already been pointed out, the Brundtland report skirts this issue by adopting a minimalist position on taxation, welfare and foreign aid. Politically, it is unlikely that either the Australian or US governments will go much beyond this stance because of the risk of capital flight from the economy and its ensuing electoral backlash. Further, both societies are built on a political culture that is willing to accept a reasonably high degree of financial inequality. These factors suggest that there is little impetus for major political intervention on this front.

Ecological sustainability is the final criterion of sustainable development. In a sense this has already been dealt with in the technical feasibility section and in the discussion of Jacobs' ideas. There are, however, other ecological factors to take into account. The siting of any production plant should not pose a risk to important ecosystems. A sustainable production facility, for example, would not

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[59] See for example, E. Greenberg, "Industrial Self-Management and Political Attitudes", *The American Political Science Review,* (1981), Vol. 75, p.31.

[60] A study of industrial democracy in Europe that included the German system was undertaken by the Australian Council of Trade Unions and the Trade Development Commission and published as: *Australia Reconstructed,* (Australian Government Publishing Service. Canberra, 1987).

[61] WCED, p.8.

be sited in the middle of a World Heritage reserve because its very presence could disrupt the ecology of the area. Further, the precautionary principle requires that where a substantial risk to the environment exists, a development should not go ahead. This principle will sometimes have to override the traditional cost-benefit analysis approach to project assessment.

To sum up, industrial production treats the environment as a source of energy, a source of raw materials and a waste disposal system. To be sustainable, the input and output factors of production should not impair the provision of environmental services. Overall, sustainable industry should be technically feasible, economically viable, socially tolerable, politically acceptable and ecologically sustainable.

The Limits of Sustainable Industry

De La Court argues that the Brundtland report's emphasis on western-style industry neglects viable alternatives such as traditional artisan production.[62] There also appears to be a contradiction in recognising the adverse environmental impacts of industrial production on the one hand and actively promoting its expansion as a cure for environmental problems on the other.[63] Further, De La Court suggests that the Brundtland report fails to challenge the habit of domination inherent within existing economic and political hierarchies. This allows existing structures (such as patriarchies) that have contributed to environmental degradation to continue operating behind the veneer of sustainable development.[64] Some defence can be mounted against these charges.

In the first place, industrial production is currently the dominant mode of production globally and has already replaced many traditionally productive activities. Although it is well established in the west, it is also rapidly expanding in Africa, Eastern Europe, the Middle East and Asia. This predominance, combined with its record of environmental damage, make industry's conversion

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[62] De La Court, pp. 13-14.
[63] De La Court, pp. 25 & 68.
[64] De La Court, pp. 118-119 & 135.

to sustainability a legitimate priority. This does not mean, however, that where a sustainable alternative mode of production is available that it should automatically be usurped by industry. Respect for cultural practices is particularly important.

In the second place, although the Brundtland report is advocating further industrial growth, the emphasis is on sustainable rather than traditional development. This means that existing processes should be replaced with sustainable production and new industries should be developed sustainably from the outset. If this happens, the environmental problems of traditional development may be avoided, if the model of sustainable industry is rigorous enough.

In the third place, the Brundtland report does go some way towards opening up decision making hierarchies to participation. This may have the effect of reducing the habit of domination within existing autocratic power structures. Further, sustainable industry may not be the final end of this process. It may solve the immediate problems of the dominant mode of production and then act as a stepping stone to a less hierarchical society. There is nothing within the sustainable development concept that says changes should stop once industries are greened. On the contrary, the Brundtland report suggests both that the process of development is ongoing and that sustainability needs to be pursued as part of a broader social agenda.[65] This agenda is left undefined, possibly to help generate consensus on immediate problems and avoid divisions on more general issues.

Overall the criteria of sustainable development can, at least in theory, be successfully applied to industry to produce a detailed policy target. This fulfils a useful role by demonstrating how the predominant mode of production can be made sustainable. It may also provide a basis for further social improvements. The issue now becomes how the economic and political power structures in the USA and Australia have coped with the policy goal.

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[65] WCED, p. 87.

3) The EPA & Sustainable Development in the US

Although the origins of sustainable development can be traced back quite a long way, the creation of the US EPA in 1970 preceded the discourse in popular American domestic politics. The Stockholm Conference and the *World Conservation Strategy* left the agency largely unaffected, and it was not until three years after the Brundtland report that the US really began to be influenced by the growing policy discourse. By that stage the EPA's legislation, programs and responsibilities had been independently developing for two decades.

The EPA's Initial Reaction

In late 1990, EPA administrator William Reilly began to adopt some of the rhetoric of Brundtland's sustainability discourse. He suggested that the agency needed to move beyond its traditional functions to encourage pollution prevention and sustainable development, but tempered these statements with a recognition of the need for sustainable *economic* growth.[66]

In 1993, after the Rio Earth Summit, Congress asked the EPA to outline its role in sustainable development. The response was a report from the EPA Office of Policy, Planning and Evaluation. This document cited Brundtland but went on to point out the lack of a clearly agreed definition, stressed the need for economic growth to pay for environmental protection, and proposed three tenets for institutionalising sustainability: long term planning perspectives; recognition that the economy and ecology are interdependent; and "new, integrative approaches to achieve economic, social, and environmental objectives."[67]

The report addressed the role of the agency in achieving sustainable development. This subject was approached with some defensiveness and it was argued that many of the agency's programs were already in accord with the new policy goal.[68]

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[66] William Reilly, "A Vision for EPA's Future", *EPA Journal,* (September/October 1990), Vol. 16, No. 5, pp. 4-5. William Reilly, "The Green Thumb of Capitalism: The Environmental Benefits of Sustainable Growth", *Policy Review*, (Fall 1990), p. 19.

[67] US EPA, *Sustainable Development and the Environmental Protection Agency: Report to Congress*, (Policy Planning and Evaluation, Washington DC, June 1993), p. 2.

[68] US EPA, *Sustainable Development...*, p. 3.

Four factors inhibiting the ability of the EPA to pursue sustainable development were discussed. First, it was suggested that the agency was limited by the fact that sustainable development was not at that time a stated goal of any legislation for which the EPA had responsibility. Second, the broad concept of sustainable development was difficult to apply to specific decisions. Third, it was suggested that any new program would have to fit in with existing projects to avoid duplication. The final point was perhaps the most pertinent one for this study and is worth quoting in some length.

> [T]he full scope of planning and implementation of sustainable development policies extends well beyond the purview of EPA. Objectives often associated with sustainable development, such as sustainable management of natural resources, sustainable agricultural practices, improved energy efficiency, improved economic and environmental equity, and a competitive U.S. economy, can only be addressed through the cooperative efforts of multiple federal agencies, the Congress, state and local governments, businesses, and non-government organizations. Similarly, cooperation among many government agencies will be needed to develop useful measures of sustainability and to assess the sustainability of environmental and economic trends on a variety of temporal and geographic scales. As the lead national agency for environmental protection, EPA can exercise an important role in developing intergovernmental and public-private coalitions to accelerate progress toward sustainability, but progress will depend on the contributions of many institutions.[69]

This statement is based on the agency's experience over quarter of a century of trying to cope with environmental issues and the resistance it encountered from business and other agencies. Many times in the past the EPA had been blamed for failing to find a quick fix for chronic problems that were inherent within conventional industrial production and that had accumulated over centuries. Given the limited resources and restricted jurisdiction, it would be unreasonable to expect the EPA alone to make the profound changes required for US industry to become sustainable.

The rest of the report was taken up with a list of existing programs that seem to be in accord with the tenets of sustainable development, including: information

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[69] US EPA, *Sustainable Development...*, pp. 3-4.

programs such as the Environmental Monitoring and Assessment Program and the National Human Exposure Assessment Survey; social science research focused on why humans behave as they do towards the environment; pollution prevention and energy conservation programs; the Toxics Release Inventory; tradeable permits under the Clean Air Act; green technology transfer programs; the move to regional and multi-media regulation; environmental education programs; and community right to know legislation under Superfund.[70]

The report also discussed the EPA's ability to promote sustainable development in international forums and mentioned the need to include environmental concerns in international trading arrangements.[71] Although the EPA was initially slow to pick up the discourse, and was a little defensive early on, it did see a major role for itself in promoting sustainable development.[72] Adapting the general sustainable development discourse to the US situation fell to two major forums: the National Commission on the Environment (NCE) and the President's Council on Sustainable Development.

National Commission on the Environment

The NCE was a group of ex-bureaucrats (from Local, State and Federal authorities), along with environmentalists, business leaders and financiers. This commission was the initiative of the World Wide Fund for Nature and was designed to raise the environment as an issue during the 1992 presidential election campaign. It was during this campaign that presidential candidate Bill Clinton, supported by the environmentally sympathetic vice-presidential candidate Al Gore, led the Democrats to victory over the incumbent Republican president George Bush. Of the 19 NCE members, four were former EPA administrators: Russell Train, William Ruckelshaus, Douglas Costle, and Lee Thomas. The group met eight times during 1992 and produced a report in 1993 called *Choosing a Sustainable Future*.

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[70] US EPA, *Sustainable Development...*, pp. 9-10, 13-22
[71] US EPA, *Sustainable Development...*, pp. 23-26.
[72] US EPA, *Sustainable Development...*, p. 27.

Overall the group was critical of the piecemeal approach to environmental regulation and suggested that a long term strategy for sustainable development should be created by the federal government. They favoured market based regulation over command and control measures, and pollution prevention over "end of pipe" solutions.[73] There were several proposals to get the market price of goods to reflect their true environmental and economic costs.[74] There were also calls for environmental problems to be sorted into various levels of priority and the promotion of sustainable technology.[75]

The EPA got several mentions as a key player. It was proposed that the agency be remade into part of a larger department of the environment.[76] Other suggestions about the EPA included: getting more involved in environmental education, implementing the proposed national sustainable development strategy, helping reduce pollution at its source, and setting up a long range forecasting information clearinghouse.[77] Several programs run by the agency were mentioned and recommended for expansion: SO_2 tradeable permits and emission bubbles created by the Clean Air Act, the Toxics Release Inventory, and the Green Lights program.[78] The most interesting proposition was for senior environmental managers to be placed in every federal department and agency.[79]

The President's Council

The President's Council on Sustainable Development was created in 1993 to develop an appropriate national strategy. It was similar in structure to the NCE only this time, current Federal and State bureaucrats were included, with business leaders, environmentalists, and a union representative.[80] The total membership

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[73] National Commission on the Environment [NCE],*Choosing a Sustainable Future*, (Island Press, Washington D. C., 1993), pp. xiv-xv.

[74] NCE, pp. 21-25.

[75] NCE, pp. 3 & 11-16.

[76] NCE, p. xix.

[77] NCE, pp. 36, 46-48, & 108.

[78] NCE, pp. 24-25, 55, 85, 94,

[79] NCE, pp. 46-48.

[80] PCSD preface: "CO-CHAIRS David T. Buzzelli, Vice President and Corporate Director, The Dow Chemical Company; Jonathan Lash, President, World Resources Institute. EXECUTIVE DIRECTOR Molly Harriss Olson. MEMBERS John H. Adams, Executive Director, Natural Resources Defense Council; Bruce Babbitt, Secretary, U.S. Department of the Interior; Richard

was 25, Carol Browner (the current EPA administrator) was one of the participants and Vice-President Gore took an active interest in the council. A series of public meetings and conferences were held across the country over three years in order to collect ideas (much like the Australian ESD Working Group process). The final report was due to be released in November 1995, but was side-tracked by the budget wrangling between Congress and the White House. The report was eventually leaked to the *New York Times* in February 1996.[81]

The most surprising aspect of the report was that the business representatives supported a continuance of federal regulations as a "safety net", albeit with substantial improvements to the current system. This was in contradiction to Republican moves at the time to reduce federal regulations. The report concluded that: "Pollution is waste, waste is inefficient, and inefficiency is expensive" (which is in accord with the EPA's pollution prevention policy).[82]

The 167 page report was finally released in March 1996. It constructed a set of broad goals under the rubric of sustainable development: a healthy environment and a prosperous economy for the US; the conservation of nature and natural

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Barth, Chairman, President, and CEO, Ciba-Geigy Corporation; Ronald H. Brown, Secretary, U.S. Department of Commerce; Carol M. Browner, Administrator, U.S. Environmental Protection Agency; Benjamin F. Chavis, Jr., National Chairman, National African-American Leadership Summit; Richard A. Clarke, Chairman and CEO, Pacific Gas and Electric Company (Retired); A.D. Pete Correll, Chairman and CEO, Georgia-Pacific Corporation; Kenneth T. Derr, Chairman and CEO, Chevron Corporation; Dianne Dillon-Ridgley, Co-Chair, Citizens Network for Sustainable Development; Thomas R. Donahue, Former President, AFL-CIO [labor representative]; Judith M. Espinosa, Former Secretary of the Environment, State of New Mexico; Dan Glickman, Secretary, U.S. Department of Agriculture; Jay D. Hair, President Emeritus, National Wildlife Federation; William E. Hoglund, Executive Vice President, General Motors Corporation (Retired); Samuel C. Johnson, Chairman, S.C. Johnson & Son, Inc.; Fred D. Krupp, Executive Director, Environmental Defense Fund; Kenneth L. Lay, Chairman and CEO, Enron Corp.; Hazel R. Leary, Secretary, U.S. Department of Energy; Michele A. Perrault, International Vice President, Sierra Club; William D. Ruckelshaus, Chairman, Browning-Ferris Industries, Inc.; John C. Sawhill, President and CEO, The Nature Conservancy; Theodore Strong, Executive Director, Columbia River Inter-Tribal Fish Commission. EX OFFICIO MEMBERS: D. James Baker, Undersecretary for Oceans and Atmosphere, U.S. Department of Commerce; Madeleine M. Kunin, Deputy Secretary, U.S. Department of Education; Richard E. Rominger, Deputy Secretary, U.S. Department of Agriculture; Timothy E. Wirth, Undersecretary for Global Affairs, U.S. Department of State. LIAISON TO THE PRESIDENT: Kathleen A. McGinty, Chair, Council on Environmental Quality." President's Council on Sustainable Development [PCSD], *Final Report*, [http://www.whitehouse.gov/WH/EOP/pcsd/Council_report], March 1996.

[81] John Cushman, "Adversaries Back the Current Rules Curbing Pollution," *New York Times*, (Monday, February 12, 1996), pp. A1 & C11.

[82] Cushamn, p. C11.

resources; promoting a sense of stewardship towards the environment; developing sustainable communities; encouraging "civic engagement" in decision making; stabilising the US population; taking the lead in international forums; and promoting environmental education.[83] The report does mention the Australian ESD Roundtable as a fore-runner (see the next section), but does not give details or draw any links with its own work.[84]

Overall, the environmental participants accepted the need for economic growth in return for business acknowledging the ecological limits on their activities.[85] Dick Clarke (the former head of Pacific Gas and Electric and a member of the President's Council on Sustainable Development) suggested that one of the lasting legacies of the exercise was to create trust and partnerships between heads of industry and the environmental movement.[86] This observation supports the notion that discourses and power relations were being modified by the consultative process.

More specific lessons were drawn from the US experience in environmental regulation. While some benefits from command and control actions are acknowledged, there was a call to move beyond this safety net and develop more flexible approaches.[87]

> The experience of the last 25 years has yielded the following lessons, which would be wise to heed in developing a new framework to achieve the objectives of sustainable development:
> - Economic, environmental, and social problems cannot be addressed in isolation. Economic prosperity, environmental quality, and social equity need to be pursued simultaneously.
> - Science-based national standards that protect human health and the environment are the foundation of any effective system of environmental protection.
> - The adversarial nature of the current system precludes solutions that become possible when potential adversaries cooperate and collaborate.

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[83] PCSD, pp. 11-12.
[84] PCSD, p. 156.
[85] PCSD, p. 6.
[86] Dick Clark, "President's Council on Sustainable Development", seminar and discussion at the Haas Business School, University of California (Berkeley), February 7, 1996.
[87] PCSD, p. 25.

- Technology-based regulation can sometimes encourage technological innovation, but it can also stifle it; pollution prevention is better than pollution control.
- Enhanced flexibility for achieving environmental goals, coupled with strong compliance assurance mechanisms -- including enforcement -- can spur private sector innovation that will enhance environmental protection at a substantially lower cost both to individual firms and to society as a whole.
- Science, economics, and societal values should be considered in making decisions. Quality information is essential to sound decision making.
- Many state governments have developed significant environmental management capacity. Indeed, many of the most creative and lasting solutions arise from collaborations involving federal, state, local, and tribal governments in places problems exist -- from urban communities to watersheds.

This passage includes the five dimensions of development (technical, economic, social, political, and ecological) with most emphasis being placed on technology and economics. The report goes on to make the case for continued government environment protection that favours market based mechanisms and joint Federal/State initiatives.

Learning to use new approaches to achieve interrelated goals simultaneously will be an evolutionary process. It needs to build on the strengths and overcome the limitations of current economic and regulatory systems and recognize the interrelationships between economic and environmental policies. This will require pursuing change concurrently on two paths: making the existing regulatory system more efficient and more effective, and developing an alternative system of environmental management that uses innovative approaches. Besides improving the cost-effectiveness of the current system, the Council believes that the nation needs to develop policy tools that meet the following broad criteria:
- Provide Greater Regulatory Flexibility With Accountability. The regulatory system must give companies and communities greater operating flexibility, enabling them to reduce their costs significantly in exchange for achieving superior environmental performance. While allowing flexibility, the system must also require accountability to ensure that public health and the environment are protected.
- Extend Product Responsibility. A voluntary system of extended product responsibility can be adopted in which designers, producers, suppliers, users, and disposers accept responsibility for environmental effects through all phases of a product's life.
- Make Greater Use of Market Forces. Sustainable development objectives must harness market forces through policy tools, such as emissions trading deposit/refund systems and tax and subsidy reform. This approach can substantially influence the behavior of firms, governments, and individuals.

- Use Intergovernmental Partnerships. Federal, state, and tribal governments need to work together in partnership with local communities to develop place-based strategies that integrate economic development, environmental quality, and social policymaking with broad public involvement.
- Encourage Environmental Technologies. The economic and environmental management systems need to create an environment that encourages innovation and the development and use of technologies that will create jobs while reducing risks to human health and harm to the environment.[88]

The report suggests that the US federal government should "set boundaries for and facilitate place-based policy dialogues" between business and communities. It is also supposed to restructure the tax system to encourage sustainable development and promote the environment in international forums.[89]

The EPA is mentioned specifically several times and is given the role of: setting performance based standards for industry; coordinating different agencies and levels of government; identifying opportunities for industry to improve its environmental performance; and providing critical data about the environment. It was recommended that the EPA's demonstration projects be expanded and the Common Sense Initiative, Project XL, the Toxics Release Inventory and the Eco-Industrial Park program were all applauded.[90]

The report does attempt to apply the broader concept of sustainable development specifically to industrial production. It suggests a whole life-cycle approach to minimise the environmental impacts of extraction, production, use and disposal of goods. The ideal objective is a zero waste system.[91] This is remarkably similar to the "closed loop" ideal promoted by the Australian ESD Manufacturing Working Group (see next section). It is suggested that progress towards sustainable industry should be indicated by more efficient material, water and energy use, as well as less waste generation and the deployment of more innovative technology.[92]

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[88] PCSD, pp. 26-27.
[89] PCSD, pp. 8, 60, 35, 37, 44 & 125.
[90] PCSD, pp. 28-31, 44-47, 62-63 & 97-99.
[91] PCSD, pp. 44-47 & 9.
[92] PCSD, p. 46.

After the report, the council was asked by President Clinton to continue its work as a federal advisory committee and a revised charter was adopted in 1997 for a further three years.[93] Several task forces were established to try to find ways to implement the policy goal, including: the Innovative Local, State, and Regional Approaches Task Force; the New National Opportunities Task Force; the International Leadership Task Force; the Climate Change Task Force; the Environmental Management Task Force; and the Metropolitan and Rural Strategies Task Force.[94] The council will also host a series of "Town Meetings" across the USA in 1999 to encourage business, communities and interested organisations to undertake sustainable development projects.[95]

The National Opportunities Task Force reported in April 1997 on collaborative approaches to sustainable development. Several of the EPA's programs were evaluated, including: the Common Sense Initiative; Project XL; and the National Environmental Performance Partnership System.[96] The report suggested that although it is too early to assess Project XL and the Common Sense Initiative, in general the EPA's collaborative projects have "had some successes" although it is difficult to quantify their effectiveness because of a lack of baseline data and monitoring.[97] It was suggested that the EPA should translate its vision of goals into specific objectives and provide strong leadership in collaborative projects.[98]

The EPA & Sustainable Development

Under Carol Browner's administration, the EPA continued to explore the possibilities for its role in sustainable development. The rhetoric of the 1994-99

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[93] PCSD, *Historical Overview of the President's Council on Sustainable Development*, [http://www.whitehouse.gov/PCSD/history.htm], April 1, 1999, p. 3.
[94] PCSD, *Historical Overview*, p. 2. PCSD, Current Activities, [http://www.whitehouse.gov/PCSD/ca.htm], April 1, 1999, pp. 1-5.
[95] PCSD, *National Town Meeting for a Sustainable America*, [http://www.whitehouse.gov/PCSD/ntm/index.htm], April 1, 1999, pp. 1-4.
[96] PCSD New National Opportunities Task Force, *Lessons Learned from Collaborative Approaches*, [http://www.whitehouse.gov/PCSD/Publications/Lessons_Learned.htm], April 1997, p. 2.
[97] PCSD New National Opportunities Task Force, p. 5.
[98] PCSD New National Opportunities Task Force. pp. 4 & 7.

strategic plan suggests that the Agency's executive has embraced the discourse.[99] Again there is the emphasis on shared responsibility, economic growth, appropriate technology and the need to provide effective information to decision makers and the public. The idea of targeting EPA programs to address high priority areas first appears to have been included to counter anticipated criticisms about how the EPA has functioned in the past.

The strategic plan summarises the goals and programs of the agency with regards to: ecosystem protection; environmental justice (particularly for lower income communities which seem to be exposed to more forms of environmental problems); pollution prevention; the development of better science and data; partnerships (with industry, community groups and other authorities); improving EPA management; and environmental accountability through better enforcement and compliance.[100]

The strategy goes through the different offices within the EPA and summarises what each is doing and how this relates to the stated policy goals. Sustainable development is often mentioned but never defined. The Office of Policy, Planning and Evaluation talks about its attempts to restructure the economy and measures of "economic well-being" to include environmental factors to get around the economy versus environment dilemma. It gives three undertakings to:

> - Promote policies that improve the functioning of markets through legal and institutional structures, thus encouraging the more efficient deployment of production capital. ...
> - Develop regulatory and non-regulatory policies, such as market incentives, to promote environmental protection and economic growth. ...
> - Bring environmental considerations into economic decisions.[101]

There is a sustainable industries program where the office works with selected firms and industries over five years to "help them satisfy their customer demand

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[99] US EPA, The *New Generation of Environmental Protection: EPA's Five-Year Strategic Plan*, (Office of the Administrator, Washington DC, July 1994), p. 2.
[100] US EPA, The *New Generation of Environmental Protection...*, pp. 10-42.
[101] US EPA, The *New Generation of Environmental Protection...*, p. 86.

through non-polluting or less polluting production processes."[102] The final section of the report outlines the programs of the ten regional offices. About half of these have program summaries that use the term sustainable development. Although it is noted that Region 10 has adopted a specific sustainable development program, not much is explained about what this is supposed to achieve.[103]

Pollution prevention appears to have become a way for the EPA to begin to respond to the sustainable development discourse. Carol Browner took up this initiative from the previous administrator, William Reilly, and continues to promote it as a better way to deal with environmental problems because it seeks to avoid damage in the first place. The idea is to encourage firms to audit their operations and find ways to make adjustments to production that reduce both their pollution and running costs.[104]

At first it would appear that business would be very keen to join these programs, however, the EPA faces a major struggle against resistant corporate discourses. Even though pollution prevention programs have been cost effective and profitable, many senior executives still perceive them as an unnecessary cost that complicates decision making. The environmental, economic and technical complexity of such schemes requires the deployment of effective cross-disciplinary teams that need the backing of senior management. It is difficult to get management to do this, but several success stories suggest that it is not impossible.[105]

The question still remains as to whether this type of state intervention is enough to achieve even a modest version of sustainability. Underwood suggests that the rate of depletion of fossil fuel reserves remains unsustainable, which is a fundamental problem for all industrialised economies. Further, despite the substantial reductions of chemicals under the Toxics Release Inventory, the level

[102] US EPA, The *New Generation of Environmental Protection...*, p. 89.
[103] US EPA, The *New Generation of Environmental Protection...*, pp. 123-156.
[104] Carol Browner, "Pollution Prevention Takes Center Stage", *EPA Journal*, (July-September 1993), Volume 19, Number 3, pp. 6-8.
[105] Peter Cebon, "Corporate Obstacles to Pollution Prevention", *EPA Journal*, (July-September 1993), Volume 19, Number 3, pp. 20-22.

of emission of hazardous pollutants is still too high.[106] Any effective attempt to promote sustainable development will therefore involve more substantial restructuring of the market and business institutions to reduce the externally constructed interest in consuming more non-renewable resources and polluting. Further, perceived interests will need to be reassessed through a more sustainable corporate discourse and better knowledge of the extent of environmental problems. The EPA's programs have only just begun to address these factors.

4) From Sustainable Development to ESD in Australia

In the years leading up to the Brundtland report's release in March 1987, the environment had become a major political and electoral issue in Australia. The proposed Franklin Dam in Tasmania became a national political issue during the 1983 Commonwealth election due to some very effective campaigning by the Wilderness Society. After the election, the new Hawke Labor government moved quickly to fulfil its promise to stop the dam and went on to complete the National Conservation Strategy process started under previous coalition regime. This began a series of pro-environmental decisions that became a feature of the lead up to subsequent Commonwealth elections in 1984, 1987, 1990, 1993, and 1996. By the late 1980s, a careful strategy had been devised by senator Graham Richardson to use environmental issues to win green preferences for the Labor party during election campaigns.[107]

By June of 1987, a few months after the Brundtland report's release, the Hawke government again sought to curry favour with environmentally concerned voters by adding the Daintree rain forest to the World Heritage list. After its re-election in July, the government continued to face difficult environmental issues.[108] In March 1989, the debate over proposed mining at Coronation Hill (within stage III of Kakadu National Park) took a new turn with the release of the draft

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[106] Joanna D. Underwood, "Going Green For Profit", *EPA Journal,* (July-September 1993), Volume 19, Number 3, pp. 9-13.
[107] McEachern, Doug, *Business Mates: The Power and Politics of the Hawke Era,* (Prentice Hall, Sydney, 1991), p. 151.
[108] Phillip Toyne, *The Reluctant Nation: Environment, law and politics in Australia,* (ABC Books, Sydney, 1994)., p. 77.

Environmental Impact Statement. This document was criticised by both greens and scientists as an inadequate assessment of the impacts of such a development.[109] Eventually, the proposed mine was stopped. The May election of five Green Independents in Tasmania, was a further indication of the electoral importance of environmental issues.

The electoral strategy of courting green preferences had its negative side. The Hawke government began to face strong criticism from business and the opposition that accused it of being anti-development. The tactical battle over the proposed Wesley Vale Pulp mill in 1989 was an attempt by the Commonwealth to appease both sides. On the one hand it wanted the project to go ahead because of the perceived economic benefits. On the other, it was forced to impose tighter environmental conditions on the project than the Tasmanian government wanted in order to appease the greens. In the end, the developers (Norandra and NBH) pulled out, publicly blaming the Commonwealth government and greens for the project's failure. Even though the developers later admitted that the decision was an economic one based on the fall in the world price of pulp, the perception of too many wins for the green movement put the Hawke government under increasing pressure from the business community.[110] It was under these conditions that Hawke released his response to the Brundtland report.[111]

Hawke's 1989 Statement: the Birth of ESD

Hawke's statement on the environment used the Brundtland report and the *National Conservation Strategy* as a basis for the new rhetoric of Ecologically Sustainable Development (ESD).

> Ecologically sustainable development means economic growth that does not jeopardise the future productive base. Renewable resources are managed so that they are not permanently depleted. In some cases the use of particular technologies or processes may be so damaging that they should be banned.

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[109] Toyne, pp. 134-135.
[110] McEachern, *Business Mates*, pp. 124-126.
[111] R. J. Hawke, *Our Country, Our Future*, (Australian Government Publishing Service, Canberra, July 1989).

Only rarely will it be necessary to take such pre-emptive action. In most cases it will be sufficient to temper the way in which projects proceed or technologies are applied to ensure that our future productive base is not impaired.[112]

This passage demonstrates both the vagueness of ESD and the desire of government to encourage development and economic growth. The rest of the document is taken up with reviewing initiatives in the management of ecosystems, water, the atmosphere, the land, and the built environment. Industry and manufacturing get several mentions, with commitments to regulate the use of industrial chemicals, promote the recycling of plastics, and encourage "energy efficient manufacturing."[113] The reduction of industrial waste is also targeted.[114] Despite the importance of these goals, the statement is careful to note the limitations of government intervention. "Governments can pass laws which punish inappropriate behaviour or encourage 'good' behaviour, but they cannot compel good behaviour."[115]

On the whole Hawke's statement lacked detail on what was to be achieved and how. It appears to have been more of an attempt to defuse the intensity of dispute that had grown up around environmental issues through two strategies. On the one hand, it sought to draw the greens' attention to the environmental runs on the board. On the other, it attempted to alleviate the growing concerns of industry about "excessive" intervention. One of the initiatives announced in the statement was the establishment of the Resource Assessment Commission. This was supposed to resolve contentious environmental and development disputes (particularly in the forestry industry) by weighing up the evidence provided by industry and the greens.[116]

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[112] Hawke, p. 4.

[113] Hawke, pp. 35, 56 & 58.

[114] Hawke, p. 55.

[115] Hawke, p. 7.

[116] Hawke, p. 12.

The ESD Discussion Paper

After the March 1990 federal election, it was evident that Labor's concessions on green issues had helped return it to power.[117] The government continued to promote an ESD discourse and released a discussion paper for public comment in June of 1990.[118] As with the Prime Minister's statement, the definition of ESD was brief.[119] The focus of this paper was very much on reconciling economic and ecological goals. As such it tended to be much narrower than the Brundtland report. There was, for example, no mention of the disadvantage experienced by indigenous people or women in industrial development. These were at least mentioned in passing by the Brundtland report.[120] The paper proposed setting up nine working groups to cover agriculture, forestry, fishing, mining, energy production, energy use, manufacturing, tourism and transport.[121] The arms industry, which had been mentioned by the Brundtland report as a threat to sustainability, was ignored.[122]

Kellow and Moon claim that the discussion paper was initially the product of several federal departments, but was rewritten by the Department of Prime Minister and Cabinet to appease the mining industry and resource bureaucracies. Initially only five working groups were proposed. The manufacturing, energy use, energy production, and transport working groups were included as an afterthought. Kellow and Moon point out that the working groups were a repetition of the National Conservation Strategy process which had already involved 20,000 people and received 4,500 submissions.[123]

The five dimensions of development present in the Brundtland report (technical, economic, social, political and ecological) were present, but dispersed through

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[117] Toyne, p. 138.
[118] Department of the Prime Minister and Cabinet, *Ecologically Sustainable Development: A Commonwealth Discussion Paper,* (Australian Government Publishing Service, Canberra, June 1990).
[119] Department of Prime Minister and Cabinet, preface.
[120] WCED, pp. 150, 184, 301, 12, & 54.
[121] Department of Prime Minister and Cabinet, p. 2.
[122] WCED, pp. 342-344.
[123] Kellow, Aynsley and Jeremy Moon, "Governing the Environment: Problems and Possibilities", in Ian Marsh (ed), *Governing in the 1990s: An Agenda for the Decade,* (Longman Cheshire, Melbourne, 1993), pp. 231-232.

various sections of the ESD discussion paper. Technical research was seen as important for "providing information on the nature and extent of environmental problems, in developing more resource-efficient (resource saving and recycling) rural, mining and manufacturing processes, and finally in identifying longer term technological alternatives."[124] It was also noted that improvements in technology increase the "productive capacity" of resources and it was claimed that Australia may already have an advantage in solar energy and energy conservation technology.[125]

The discussion paper focused heavily on economic viability. This was evident in the emphasis placed on the need for economic growth and international competitiveness.[126] Social goals, such as the desire for equity within and between generations, were briefly canvassed and the political dimension was acknowledged in discussing the need for cooperation between all levels of government.[127] The need for ecological sustainability was in the background throughout the whole document without being clearly defined.

The manufacturing industry had two pages devoted to it, with the aim of setting up issues to be dealt with by the ESD working group. This part of the report again stressed the economic and technical aspects of ESD. It also emphasised the need for government intervention to correct market deficiencies and the need for uniform regulations across state boundaries.[128]

Brundtland's Re-Release

Other developments in 1990 included the re-release of the Brundtland report in an Australian edition. This new-look volume kept the original report intact but added a chapter by the Commission for the Future. The purpose of this chapter was to adapt the notion of sustainable development to the Australian situation, in a format that would have more popular appeal than a Commonwealth discussion

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[124] Department of Prime Minister and Cabinet, p. 19.
[125] Department of Prime Minister and Cabinet, pp. 5 & 24.
[126] Department of Prime Minister and Cabinet, pp. 3 & 10.
[127] Department of Prime Minister and Cabinet, p. 2 & 17.
[128] Department of Prime Minister and Cabinet, pp. 35-36.

paper. There was, however, little new material in this section. Much of the subject matter overlapped with the National Conservation Strategy, the Brundtland report, and Hawke's 1989 environment statement. However, there were three points worthy of note. First, it took a broader approach to sustainable development than the ESD discussion paper and included a small section on Aboriginal involvement in eco-tourism, wildlife management, and sustainable pastoralism.[129] Second, it pointed out several joint ventures between greens, industry and government, such as: the ACF and NFF collaboration on Landcare; the EcoReDesign project between RMIT and industry; the commitment by both the ACF to 'a decade of solutions' and the BCA's new goal of '*both* economic growth and environmental protection'.[130] Third, it pointed out that there were two different approaches to sustainable development policy making.

> The first seeks to define social, cultural, political, as well as economic and ecological, requirements of biophysical sustainability. The second focuses more narrowly on the economics of sustainable development; that is, incorporating the biophysical environment into economic modelling, accounting, and decision making.[131]

It appears that the Brundtland report and the Commission for the Future at least discussed the broader policy goals. The ESD discussion paper was closer to the narrower, economic approach.

The ESD Working Groups

This discussion paper set the tone for the ESD working groups, established in August 1990 when Hawke appointed three academics to chair nine groups: agriculture, energy use, energy production, fisheries, forest use, manufacturing, mining, tourism and transport. The overall leader was Dr. Roy Green, director of the CSIRO Institute of Natural Resources and Environment. The other two were Professor Stuart Harris from the ANU Department of International Relations, and Professor David Throsby from the School of Economic and Financial Studies at

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[129] Commission for the Future, "A Sustainable Future for Australia", in *Our Common Future*, Joint publication with World Commission on Environment and Development, (Australian Edition, Oxford University Press, Melbourne, 1990), pp. 53-55.
[130] Commission for the Future, pp. 53-55, 52 & 59.
[131] Commission for the Future, pp. 27-28.

Macquarie University. In November, the three chairs set up separate intersectoral issue and greenhouse inquires that reported separately in 1992.

The Working Groups convened in October. There were 144 participants in total, made up of 90 public servants (state and federal), 18 industry representatives, 17 conservationists, 9 union delegates and 7 special interest group representatives. The conservationists were drawn from the WWF, the ACF and Greenpeace. All green groups refused to participate in the forest use group. In March of 1991, Greenpeace withdrew because of the federal government's pursuit of resource security legislation for the forestry industry. A series of meetings and public conferences took place over the next few months and the interim working group reports were released for public comment from June to August of 1991.[132] The final reports were released in November. In all, the working groups made 405 recommendations and many of the findings were used in the Australia's submission to the Rio Earth Summit in 1992.[133]

The Manufacturing Working Group was chaired by Stuart Harris and included 15 other members: 1 from the ACTU; 2 from state ministerial councils (in Victoria and Queensland); 4 from the Commonwealth government; 1 from the CSIRO; 3 from conservation groups; 2 from consumer groups and; 2 from industry (1 from the BCA and 1 from the AMC).[134] This report, like the others, was closer to the narrow economic approach mention in the ESD discussion paper. This was to facilitate the development of consensus, given the limited time and resources available to the group.[135]

The report made 93 recommendations on: the structure of industry (international competition, investment, employment, management practices, green goods and

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[132] Their findings were summarised in the Ecologically Sustainable Working Groups, *Final Report - Executive Summaries*, (Australian Government Publishing Service, Canberra, November 1991).

[133] Department of Arts, Sport, the Environment, Tourism and Territories, *Australian National Report to the United Nations Conference on Environment and Development,* (Australian Government Publishing Service, Canberra, December 1991).

[134] The Australian Manufacturing Council (AMC) is a tripartite body set up to encourage the cooperation of unions, business and the federal government in this sector.

services, environmental monitoring, research and development); project development (location and approvals); pollution control (regions, market mechanisms, contaminated sites, and auditing); waste minimisation (packaging, recycling, and intractable waste); conservation of biodiversity; energy and climate change (greenhouse emissions), and; consumer programs (information, education, health and safety).[136] It also made several recommendations about reforming and integrating agencies and policies at all three levels of government.[137]

Although the report does not attempt to define sustainable development rigorously, the five dimensions are again apparent.[138] There is considerable emphasis placed on economic viability through competitiveness (recommendations 4-5) and the need for a politically streamlined approval process (recommendations 31-39).[139] The key role of technology is acknowledged by calls for more research and development into environmentally friendly products and processes (recommendations 26-29).[140] The government's role is seen as one that should be supportive of industry by funding research and taking responsibility for the achievement of social and environmental goals.[141] Broader issues such as the impact of development on women and indigenous Australians rate only a brief mention in recommendation ten.[142] These issues are dealt with in a little more detail in the intersectoral issues report, but even then there is no fundamental questioning of the possible structural causes of the disadvantage felt by these groups.[143] The report does attempt to outline an ideal model for sustainable manufacturing.[144] It initially lists 14 features that manufacturing should acquire for sustainability but later reduces these to five main points.[145]

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[135] These constraints were acknowledged in Prime Minister Hawke's letter of Charter in the Ecologically Sustainable Development Working Groups, *Final Report - Manufacturing,* (Australian Government Publishing Service, Canberra, November 1991), pp. 195-197.
[136] ESD Manufacturing Working Group, pp. 119-186.
[137] ESD Manufacturing Working Group, pp. 191-192.
[138] ESD Manufacturing Working Group, pp. xvii-xviii.
[139] ESD Manufacturing Working Group, pp. 52, 123-125 & 144-145.
[140] ESD Manufacturing Working Group, pp. 139-140.
[141] ESD Manufacturing Working Group, pp. 139-140 & 77.
[142] ESD Manufacturing Working Group, p. 129.
[143] Ecologically Sustainable Working Group Chairs, *Intersectoral Issues Report,* (Australian Government Publishing Service, Canberra, 1992) pp. 143-146 & 132-134.
[144] ESD Manufacturing Working Group, pp. 51-84.

In an ideal world manufacturing operations would create no environmental or health problems during the production process or through the use and disposal of products. A more realistic vision of sustainable manufacturing might incorporate manufacturing processes:
- which use best environmental practices including the best technology from both environmental and economic perspectives;
- where all opportunities are taken to minimise waste by extracting and collecting useful by-products from wastes where economically and technologically feasible;
- where every attempt would be made to minimise or eliminate the production of hazardous waste and to dispose of it in ways that minimise environmental damage;
- which, where possible, use renewable energy forms or less polluting sources of energy, and use all energy efficiently; and
- which contribute to development of environmental technologies and products.[146]

The aim is to create an industry that operates in a "closed loop" with the environment by considering the whole life-cycle of activity (from raw material extraction, through processing, to use and disposal).[147] This means using resources and energy sustainably, while generating products and either avoiding waste or producing wastes of a type and quantity that can be assimilated by the environment or recycled. Overall, the report draws heavily on the principles of Brundtland and enumerates a reasonably detailed framework for policy implementation. It does however, tend to take a more narrow focus than the Brundtland report, focusing very much on economic issues and the role of the state in supporting a well regulated market.

The ESD Legacy

There was a mixed response to the ESD working groups. Environmentalists initially criticised the incremental reform strategy for achieving ESD.[148] They did, however, accept that the process was a necessary (but limited) first step in the right direction.[149] Other criticisms revolved around the extent of public

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[145] ESD Manufacturing Working Group, pp. 52-53.
[146] ESD Manufacturing Working Group, pp. 57.
[147] ESD Manufacturing Working Group, p. 4.
[148] Bill Hare, "Where to Now?", *Habitat Australia: Special Issue*, (February 1992) Vol. 20, No. 1, pp. 12-13.
[149] Rae, M., "No, Australians Won't Have to Live in Caves", *The Australian Quarterly*, (Summer 1991), Vol. 63, No. 4, pp. 383-393.

consultation. The selective use of peak body organisations in the working groups was seen as too corporatist.[150] Some of the public seminars were conducted even before the draft reports were released, which limited the ability for effective public input.[151] The Business Council of Australia (BCA) called the public consultation process "confused". It also claimed that the dominance of public servants in the working groups made the proceedings out of touch with the market place and the needs of business.[152]

In 1992 the BCA and the Australian Manufacturing Council (AMC) released their own environmental policy documents in response to the ESD reports. The International Chamber of Commerce had already produced a *Business Charter for Sustainable Development* in 1990. This was appended to the ESD manufacturing report. The BCA document made reference to its involvement in the ESD working groups, and drew on the Brundtland definition of sustainable development. The five development dimensions were again apparent, but with even narrower emphasis.[153] In particular, the notion of consulting with the community was recast as a need to publicise the environmental policies of business. Further, environment protection initiatives were endorsed only if business considered them affordable.[154]

The Australian Manufacturing Council released a more detailed set of guidelines under the rubric of Best Practice Environmental Management (BPEM).[155] The five Brundtland criteria were apparent but cast in slightly different forms.[156] There was a more explicit reference to the need to adopt management structures that are flexible and participatory (for both the work-force and the community).[157] The

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[150] Zarsky, L., "The Green Market", *Australian Left Review*, (December 1990), Vol. 124, pp. 12-17.
[151] Chaney, F., "The Alternatives - the Opposition View on ESD", *The Australian Quarterly*, (Summer 1991), Vol. 63, No. 4, p. 396.
[152] Business Council of Australia, "Ecologically Sustainable Development: A Truly Heroic Quest", *Business Council Bulletin*, (September 1991), Vol. 79, pp. 6-11.
[153] Business Council of Australia, *Principles of Environmental Management*, (Business Council of Australia, Melbourne, 1992), pp. v-vi, 2 & 9.
[154] BCA, *Principles*, p. v.
[155] Australian Manufacturing Council, *The Environmental Challenge: Best Practice Environmental Management*, (Australian Manufacturing Council, Melbourne, March 1992).
[156] AMC, p. 25.
[157] AMC, pp. 23-24 & 34-35.

report gives the state a role as the means to assist in the development and deployment of green technology. It is careful, however, to emphasise the problems that may arise from over-regulation.[158]

Overall, BPEM is portrayed as a kind of paradigm shift in corporate culture.[159] There are several examples of BPEM companies, most of them bear some (but by no means all) of the features outlined in the model of sustainable industry.[160] This appears to be a genuine attempt to develop an alternative green corporate discourse but, given the ongoing poor performance of Australian industry with regards to the environment, it appears to have had little real impact. The reforms promoted by BPEM are too timid in comparison to the scope, scale and seriousness of environmental problems. In any case, a 1994 study by the Australian Manufacturing Council found that only one in five firms had achieved best practice.[161]

The complex nature of the ESD reports led to the establishment of two further cooperative bodies in 1991. One was the joint federal-state ESD Steering Committee. The other was the ESD Roundtable which included government, business, unions and environmentalists.[162] The object was to develop a coherent national response to the extensive ESD recommendations. In 1992, the ESD Steering Committee released the *National Strategy for Ecologically Sustainable Development.*[163] This document was targeted at a wider audience than the working group reports and was mainly devoted to summarising the outcome of the ESD policy making process and the significance of the Rio Earth Summit. It did, however, outline a strategic ESD policy goal for Australia.

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[158] AMC, pp. 25-31 & 9.

[159] AMC, pp. 12-14.

[160] Such as the use of treated waste water by COMPOL to irrigate 10 ha of pasture and forest, described on p. 45.

[161] Australian Manufacturing Council, *Leading the Way: A Study of Best Manufacturing Practices in Australia and New Zealand,* (AMC, Melbourne, 1994), p. 11.

[162] Toyne, note 9 on chapter 10, pp. 219-220.

[163] ESD Steering Committee, *National Strategy for Ecologically Sustainable Development,* (Australian Government Publishing Service, Canberra, December 1992).

THE GOAL IS:
Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.

THE CORE OBJECTIVES ARE:
- to enhance individual and community well-being and welfare by following a path of economic development that safeguards the welfare of future generations;
- to provide for equity within and between generations;
- to protect biological diversity and maintain essential ecological processes and life support systems.

THE GUIDING PRINCIPLES ARE:
- decision making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations;
- where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- the global dimension of environmental impacts of actions and policies should be recognised and considered;
- the need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised;
- the need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised;
- cost effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms;
- decisions and actions should provide for broad community involvement on issues which affect them.[164]

There is a short section dedicated to manufacturing industry which recapitulates the conclusions of the ESD working group and the industry response. Governments are committed to supporting environmental audits, BPEM, providing technical support through targeted research, coordinating agencies and integrating regulations.[165] The objective for the manufacturing sector is also defined: "To achieve a robust, internationally competitive, export-oriented manufacturing sector, which contributes to a stronger economy, operates in accordance with the principles of ESD, and efficiently uses the renewable and non-renewable resources on which manufacturing depend."[166]

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[164] ESD Steering Committee, p. 8.
[165] ESD Steering Committee, pp. 33-36.

Both the ALP and the Liberal party initially released policy documents supporting the ESD outcome in the lead up to the March 1993 federal election.[167] Keating appeared to be keen to stress his green credentials after taking over as Prime Minister from Hawke in 1991. Since then, the ESD debate has lost most of its momentum. The working group recommendations and national strategy were passed on to an array of short lived state and federal government committees. The Resource Assessment Commission and ESD Roundtable were disbanded.[168] In 1996 the Intergovernmental Committee for ESD, that replaced the ESD Steering Committee, published a 200 page report on progress made by all levels of government. It is an unexceptional catalogue of existing legislation, programs and policy statements.[169]

By the time the Commonwealth government changed in 1996, ESD had disappeared from the national political agenda and the National Strategy was out of print. The environmental policy agenda was replaced by the new Howard government's National Heritage Trust which had a strong emphasis on rural employment, conservation, land use and fresh water management programs.

Two things are apparent from this brief policy history. First, although the core rhetoric remains consistent, the Australian ESD policy was considerably more narrowly defined than Brundtland's concept of sustainable development. This is despite the exhaustive and wide ranging consultation processes of both the National Conservation Strategy in 1982-85 and the ESD working groups in 1990-91. It is apparent that this less comprehensive approach was preferred by Australian business. The rhetoric of ESD has subsequently been adopted by parts of the state and some elements of business, yet it doesn't appear to be leading to the reforms needed to adequately address environmental issues.

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[166] ESD Steering Committee, p. 33.

[167] Paul Keating, *Australia's Environment: A Natural Asset*, (Prime Ministers Statement on the Environment, Australian Government Publishing Service, Canberra, December 1992), p. 1, and the Liberal and National Parties, *Environment Policy: A Better Environment - and Jobs*, (Liberal and National Parties, Canberra, February 1993), p. 10.

[168] Toyne, p. 149 and note 9 on chapter 10, pp. 219-220.

[169] Intergovernmental Committee for Ecologically Sustainable Development, *Report on the Implementation of the National Strategy for Ecologically Sustainable Development (1993-1995)*, (Department of Environment Sport & Territories, Canberra, July 1996).

The second point is that despite all the reports, a concrete mechanism for achieving ESD remains elusive. A new national agency may have a role to play but, as in the USA, no single agency can be expected to "fix" environmental problems. The Labor government did create a Commonwealth EPA in 1990, but this was downgraded by the new Coalition government after the 1996 election (chapter 7).

A Special Premiers' Conference was convened in 1990 where the leaders of State, Territory and Commonwealth governments met to discuss "new federalism" and cooperative administrative arrangements. The conference began to develop an *Intergovernmental Agreement on the Environment* that was completed in 1992. Part of the agreement included a proposal to establish a joint state/federal ministerial council to create national environment protection standards. This move was endorsed by both the ESD manufacturing working group and the ESD Steering Committee.[170] Both the Commonwealth EPA and the National Environment Protection Council will be discussed in the next chapter.

Conclusion

The rise of sustainable development discourse provided an opportunity for nation-states to reduce the confrontations between industry and the green movement by constructing a perceived common interest in both a healthy environment and a healthy economy. Initially the concept appeared to offer a comprehensive framework to address the technical, economic, social, political and ecological problems inherent in industrial development. The discourse, however, has been rapidly narrowed by various official consultative forums to suit a pre-existing political and economic agenda that favours business. While the US has sought to redefine a role for existing institutions such as the EPA, Australia sought to create new national institutions to overcome both Commonwealth-State and green-business tensions. The overriding emphasis in both countries has been to find ways to protect industrial development and economic growth by helping to make

business greener. This approach has been at the expense of more effective environmental initiatives that are not perceived to be in the interests of business. Although sustainable development persists on the formal US political agenda, it has faded rapidly in Australia. It did, however, contribute to a further reorganisation of the state that led to the construction of new national environmental institutions.

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[170] ESD Working groups, *Final Report - Manufacturing,* recommendation 87, p. 192, and the ESD Steering Committee, pp. 15 & 58-59.

Chapter Seven

Australia Re-Invents Environment Protection

Introduction

Australia was slower to construct national environment protection institutions than the USA, but quicker to develop sustainable development policies. This is in part due to differences in the way environmental issues have manifested themselves in each country and in part because of significant structural differences in their technical, economic, social and political institutions and contexts. As a result, the order of policy development and agency creation has been reversed.

The US created a strong federal institution (the EPA) in 1970, then began to generate a national sustainable development discourse in 1993. Australia did not create a Commonwealth EPA and a National Environment Protection Council until after Hawke's ESD policy statement in 1989. The US has therefore had to adapt existing institutions to a new policy discourse, while Australia built new institutions within the rhetoric of a national ESD discourse. Another difference is that the US has shifted downwards from a strong Federal position to more cooperative arrangements, whereas Australia relied heavily on the States first, then moved upwards towards cooperative schemes. It may be that both countries are converging on a similar set of institutional arrangements and national policy discourses from opposite directions.

This chapter analyses the Australian approach of trying to encourage environment protection under the rhetoric of the new ESD policy discourse. Section one briefly reviews the rise of Commonwealth environmental regulation since 1970 to give some institutional context. Section two considers the rise and fall of the

Commonwealth EPA (CEPA) from 1990 to 1996. The brevity of the agency's existence together with its modest range of programs makes a trans-structural assessment of effectiveness difficult, but the governmentality of its role in environmental impact assessment (EIA) is singled out for more detailed analysis. Section three looks at the origins and design of the new National Environment Protection Council (NEPC). It is apparent that both the council's structure and programs have been shaped by a compromise between the competing discourses of the relevant political actors: business, the greens and government.

1) The Commonwealth Awakes

Historically, environmental regulation has been the purview of the States in Australia for two main reasons. First, prior to federation, they were the primary legislative bodies. Second, after federation, the constitution did not provide the Commonwealth with an explicit power to regulate the environment and the States jealously guarded their residual powers.

State environmental legislation can be found as far back as 1881 when Tasmania passed its first River Pollution Act.[1] As the industrial development of Australia progressed, there was a corresponding expansion in State environmental legislation, particularly after WWII. By the late 1960s, all States had laws concerning the quality of air, land and water.[2] By 1974, under pressure from a growing environmental discourse, they had all established some sort of environmental organisation. Victoria created its own EPA in 1970, followed by WA in 1971. NSW formed a State Pollution Control Council and SA created a Department of Environment, both in 1970. Most of these organisations were designed to take over the administration of the growing body of environmental legislation that had been accumulating since last century.[3]

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[1] Gerry Bates, *Environmental Law in Australia* (3rd. Ed., Butterworths, Sydney, 1992), p. 290.
[2] Bates, pp. xxvii-liv.
[3] Alan Gilpin, *Environment Policy in Australia*, (University of Queensland Press, Brisbane, 1980), pp. 37 & 44

During the 1970s the Commonwealth began to take a serious interest in environmental issues and it developed three strategies for intervention. First, purely Commonwealth initiatives were taken to manage those areas within its accepted jurisdiction. This approach was guided by the classical discourse on the rights of States under the vertical separation of powers in the Australian constitution. Second, cooperative Commonwealth/State initiatives were developed to deal with inter-jurisdictional issues and were encouraged by a growing "new federalism" discourse. Third, the Commonwealth began to creatively use some of its constitutional powers to intrude into what was traditionally considered to be State jurisdictions.

The first strategy (action within Commonwealth jurisdictions) involved establishing new institutions and new pieces of legislation. The Commonwealth Department of Environment, Aborigines and the Arts was created in 1971, but was initially restricted to an advisory role. After various phases of growth, restructuring and contraction, "Environment Australia" was established in 1996 as an umbrella group of all the environmental responsibilities within the Department of Environment, Sport and Territories (DEST). The Australian Heritage Commission and the National Parks and Wildlife Service were created in 1975.

During the early 1970s a raft of new legislation was also passed. The Commonwealth Environment Protection (Impact of Proposals) Act of 1974 was of particular importance because it allowed the Commonwealth to demand an Environmental Impact Assessment for any project in which it was involved or that required its approval.[4] The Commonwealth also moved to conserve areas directly under its control in the Territories.

The second strategy (Commonwealth/State cooperation) led to the establishment of a network of joint councils to deal with specific inter-jurisdictional issues. In 1972 the Australian Environment Council was created and New Zealand was admitted to the council in 1989. In 1974, the Council of Nature Conservation

Ministers was established. Both these organisations were combined in 1991 to form the Australian and New Zealand Environment and Conservation Council (ANZECC). This council still provides the main forum for the exchange of information between the relevant Ministers of Environment and Conservation but has no power to generate or enforce binding decisions. Many other joint councils were created to deal with issues related to the environment. These included: the Australian Agricultural Council; the Australian Transport Advisory Council; the Australian Water Resources Council; the Australian Forestry Council; the Australian Fisheries Council; the Marine and Ports Council of Australia and; the Australian Minerals and Energy Council.[5]

In line with this cooperative approach, the Commonwealth passed legislation designed to encourage good State environmental management by offering funds for conservation projects. Two such acts were the States Grants (Nature Conservation) Act of 1974 and the Environment (Financial Assistance) Act of 1977. Another joint effort was the development of uniform Commonwealth/State legislation relating to the regulation of Sea and Submerged Lands.

The third strategy (Commonwealth intervention in so called "State issues") arose from dissatisfaction with particular State government decisions. When the Queensland government refused to stop oil exploration on the Great Barrier Reef, the Commonwealth declared it a national park. Similarly, the refusal of Queensland to stop sand mining on Fraser Island led the Commonwealth to shut down the operation by refusing to grant export licenses for the minerals extracted.[6]

These three strategies developed further over the next decade. In 1980, the Fraser government responded to the release of the *World Conservation Strategy* by proposing a corresponding joint national strategy. All three levels of government,

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[4] Michael Crommelin, *Commonwealth Involvement in Environment Policy: Past, Present and Future,* (Intergovernmental Relations in Victoria Program, University of Melbourne Law School, Melbourne, April 1987), pp. 5-7.

[5] Crommelin, p. 7.

[6] John Formby, "Environmental Policies in Australia - Climbing the Down Escalator", in Chris Park (ed), *Environmental Policies: An International Review,*(Croom Helm, London, 1986), p. 216.

business, the greens, bureaucrats, unions and the public participated in a range of public conferences designed to come up with an appropriate response. The final draft of the *National Conservation Strategy* was put together at a joint conference in June 1983.[7] Although the 1983 election led to a change of government, the *National Conservation Strategy* was endorsed by the Commonwealth, and all States had signed up by the end of 1985.

Like its international counterpart, the strategy promoted sustainable development as a desirable goal without giving a comprehensive definition of the concept.[8] Despite the effort put into the production of the strategy, it does not seem to have had a major impact on policy making, yet the Commonwealth has continued to pursue cooperative approaches to environmental problems. In 1985, for example, it established the joint Murray-Darling Basin Ministerial Council with New South Wales, Victoria, and South Australia (Queensland became involved in the early 1990s). The aim was to protect Australia's most economically and socially important fresh water resource. This is yet to be achieved and salinity levels have risen steadily while toxic blue-green algae blooms have become a recurring problem during summer.

Direct Commonwealth intervention also continued to expand during the 1980s. In 1983, the new Hawke government moved to prevent the construction of the Gordon-below-Franklin dam in a World Heritage listed area of Tasmania. This action relied on the use of the external affairs powers granted to the Commonwealth under section 51 of the constitution. It was argued that because Australia was a signatory to the World Heritage Treaty, the Commonwealth could intervene to protect listed areas.[9] This interpretation was upheld by the High Court in 1984. The Commonwealth also used World Heritage listing to protect areas of the Daintree rain forest in the run up to the 1987 election and Kakadu in

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[7] Doug McEachern, *Before and Beyond Ecologically Sustainable Development: The Process and Limits to the Government's Response to Environmental Concern*, (Paper presented to the Annual conference of The Australian Political Studies Association, Monash University, Sept. 29 - Oct. 1, 1993), p. 3.

[8] *A National Conservation Strategy for Australia*, (Australian Government Publishing Service, Canberra, 1984), pp. 12-13.

[9] Bates, p. 54.

1992, although these decisions appear to have been a ploy to capture the pro-green swinging voters in marginal electorates.[10]

Environmental intervention was also developing rapidly at the State level with governments restructuring their environmental institutions and legislation. The most significant changes were in Tasmania. In 1989 five green independents gained the balance of power in the State House of Assembly. After intense negotiations, they signed an Accord that committed them to support a minority Labor government in return for several environmental concessions. As a consequence, an upper limit was placed on wood chipping and the total area of land listed under the World Heritage Treaty was more than doubled. The Greens lost the balance of power at the 1992 State election but regained it in 1996. The two major parties then joined forces to amend the electoral act and reduce the number of lower house seats from 35 to 25. This raised the required electoral quota and the Greens were reduced to one seat after the 1998 State election.

By the end of the 1980s, Australian environmental regulation consisted of a patchwork of Commonwealth and State legislation and a somewhat neglected National Conservation Strategy. Environmental bureaucracies abounded and there was a complex web of joint councils and strategies. Commonwealth intervention was becoming more common with the environment achieving the status of a perennial election issue. While the environment had entrenched itself on the political agenda, issues usually emerged in a sporadic and unpredictable form. The response of the state was to try to reorganise itself in a way that would head off future conflict and uncertainty. The Resource Assessment Commission and the ESD Working Groups discussed in the previous chapter were both attempts to manage conflict. The formation of a Commonwealth EPA and the National Environment Protection Council represented another tack.

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[10] Philip Toyne, *The Reluctant Nation: Environment, Law and Politics in Australia,* (ABC Books, Sydney, September 1994), pp. 77-78.

2) The Rise and Fall of the Commonwealth EPA

Goals, Structure, Powers & Resources

The idea of a Commonwealth EPA (CEPA) was first mooted during the 1990 election. In July 1991, after receiving several submissions from business and the green movement, a draft proposal was released that linked the new agency to the ESD policy process.[11] The formation of the agency was seen as the first part of a major institutional restructuring. Stage two was to have been the creation of a National Environment Protection Authority (NEPA) that was being negotiated at the Special Premier's Conference during the drafting of the Intergovernmental Agreement on the Environment.[12] CEPA's responsibilities were specified by the 1991 proposal.

> The priority issues requiring early action by the [Commonwealth] EPA include:
> - waste minimisation strategies, including recycling;
> - the Environmental Choice Scheme, including education and information programs undertaken in collaboration with industry and consumer groups;
> - development of a national approach to the problem of land-based discharges into water;
> - state of the environment reporting;
> - investigating the option of a 20-year plan similar to that successfully developed by the Netherlands, supported by analysis along the lines of the International Institute for Applied Systems Analysis in Europe, and by appropriate consultation processes, such as those undertaken in Canada to seek consensus on priority environment actions;
> - completion and implementation of national air and water quality guidelines and standards;
> - development of a national approach to the regulation of elements of biotechnology;
> - review of the environmental impact assessment system;
> - greenhouse response strategies; and
> - development of a national approach to the rehabilitation of contaminated sites.[13]

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[11] Department of Arts, Sport, the Environment, Tourism and Territories [DASETT], *Proposed Commonwealth Environment Protection Agency: Position Paper for Public Comment*, (Australian Government Publishing Service, Canberra, July 1991), p. 1.
[12] DASETT, p. ii.
[13] DASETT, p. 2-3.

These goals bear some similarity to those set for the US EPA (see chapter 3) with two main exceptions. First, they lack any mention of enforcement powers because the jurisdiction of Commonwealth agencies is extremely limited by the Australian political context in comparison to the USA. Second, these goals include issues such as greenhouse emissions, biotechnology, environmental labelling and national strategies that were not on the political agenda when the US EPA was created. This demonstrates how much the discourses that constructed and shaped environmental issues had developed over the intervening two decades.

Initially CEPA was supposed to evolve into a separate statutory authority, but this never happened.[14] Like the US EPA, CEPA was supposed to act as the nation's environmental liaison to the international community and UNEP.[15] Unlike the US EPA, CEPA was seen as a key strategic tool for implementing ESD policies from its inception.[16]

CEPA was formally established in August 1991.[17] On February 7, 1992, Ros Kelly announced the appointment of Dr. Ian McPhail (then head of the SA Department of Environment and Planning) as its first Executive Director. In making the announcement, she emphasised the roles of: linking all levels of government and business; helping to establish air and water quality standards; overseeing initiatives on ozone protection, waste management, labelling, environmental reporting, and reviewing the arrangements for environmental impact assessment (EIA).[18]

CEPA staged an inaugural conference in August 1992, with representatives of the green movement, business, and officials from the Commonwealth, State and Local governments in attendance. The idea was to inform interested parties about the structure and purpose of the agency, as well as seek their input about how it

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[14] DASETT, p. 11.

[15] DASETT, p. 22.

[16] DASETT, pp. 10 & 17.

[17] Martin Summons, "Environment job not McPhail-safe", *The Australian*, (October 22, 1992), p. 34.

[18] Ros Kelly, *Head of Commonwealth Environment Protection Agency Appointed*, (Media Release, Canberra, February 7, 1992).

should function.[19] In his address to the conference, McPhail emphasised the importance of CEPA in achieving ESD and reiterated the functions outlined in the earlier discussion paper.[20] The conference sought to build upon these functions and the need to support business trying to achieve cleaner production was noted.[21] Other suggestions included: organising tax deductions for investments in cleaner production technology; funding baseline research on the state of the environment; and simplifying EIA procedures. Of particular interest was a call to clearly define CEPA's role in ESD.[22]

In October CEPA was given responsibility for a major review of Commonwealth EIA procedures.[23] In the same month, Ian McPhail resigned from the directors position and was replaced by David Buckingham.[24] Buckingham was transferred to another department in August 1993 and the position was temporarily filled by John Whitelaw.[25] Barry Carbon took over as Executive Director in December 1993 and stayed until the agency's demise in 1996.[26] Carbon had been head of the West Australian EPA and was credited with Alcoa's Jarrah forest rehabilitation scheme. He endorsed the idea of the agency acting as a facilitator for business and government to achieve ESD.[27] The frequent changes of leadership were the source of some criticism from business on the basis that it would make the development of a consistent approach difficult.[28]

During the first few years the agency underwent considerable institutional restructuring that was largely complete by September 1994. The new structure

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[19] Commonwealth Environment Protection Agency [CEPA] , *Report on the Conference: Achievement Through Cooperation,* (Australian Government Publishing Service, Canberra, 26-27 August, 1992), p. 2.

[20] Ian McPhail, *The Role of CEPA and NEPA: Towards a National Approach to Environmental Protection in Australia,* (Commonwealth Environment Protection Agency, Canberra, 1992), pp. 1-2.

[21] CEPA, p. 7.

[22] CEPA, p. 11-13, & 18.

[23] Ros Kelly, *Public Review of Environmental Impact Assessment,* (Media release, Canberra, October 19, 1993).

[24] Summons.

[25] Anon., "New CEPA Chief Executive", *Greenweek,* (August 17, 1993), p. 4.

[26] Narelle Hooper, "Industry Shapes up for Fight with Kelly", *Business Review Weekly,* (February 21, 1994), pp. 30-32.

[27] Interview with Barry Carbon, conducted September 22, 1994 at CEPA in Canberra. Julian Cribb, "Anti-pollution guru sees hope in the dirty war", *The Australian,* (February 14, 1994), p. 10.

was more integrated, without the core binary division that initially carried over from its origins as separate divisions of the department. In its place were several functional subsections designed to deal with waste management, environmental standards, environment assessment, environment protection partnerships, establishing the NEPC, strategic planning and coordination, and public relations and education. The name of the organisation had also been simplified to the Environment Protection Agency (EPA).[29] The agency was able to avoid the conflicting logic of regional, media and functional offices that were implicit within the design of the US EPA (see chapter 3).

Even in its heyday the resources given to the Commonwealth EPA were not extensive. In the 1992/93 financial year, it employed 120 staff and spent $14 million. During this year, the Department of Arts, Sport Environment, Tourism and Territories (DASETT) had a total expenditure of $750 million, $146 million of which had been directed towards the environment.[30] As with the USA, the whole environment budget constituted less than one percent of the total Commonwealth outlays. By the 1993/94 financial year CEPA's budget had peaked at $22 million.[31]

On March 25, 1994, John Faulkner took over as Minister for Environment, Sport and Territories from Ros Kelly. In May, he announced that $180 million of the 94/95 reformed Department of Environment, Sport and Territories (DEST) budget (then $636 million) would go to environment programs. These included: $5 million on the greenhouse research program; $2.8 million on climate change research; $2.3 million on state of the environment reporting; $3.6 million on the National Pollution Inventory, and; $1.8 million on establishing the new NEPC.[32] The change of government in 1996 led to Robert Hill becoming the new Minister

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[28] Hooper, p. 30.

[29] Environment Protection Agency, "Organisational Chart", *EPA Facts Sheet*, (Australian Government Publishing Service, Canberra, September 14, 1994).

[30] Department of Environment, Sport and Territories, *Annual Report: 1992-93*, (Australian Government Publishing Service, Canberra, 1993), pp. 34 & 172.

[31] Department of the Environment, Sport and Territories, *The Environment Portfolio*, (Australian Government Publishing Service, Canberra, 1993), p. 104.

[32] John Faulkner, *Continued Commitment to Environment,* (Media Release, Canberra, May, 10, 1994).

for the Environment and the agency's budget was reduced to $15 million as priority was shifted to the National Heritage Trust.[33]

In comparison with the US EPA, CEPA was a very different sort of institution created in a very different context. Although Nixon had deliberately restricted the US agency's institutional space under his "new federalism" discourse, CEPA was even more restricted by the "States' rights" discourse of Australia's political culture and constitution. It did not create or enforce the prime environmental regulations for industry because this was the traditional prerogative of State legislatures and agencies. National standards either did not exist or could only be negotiated in cooperative Commonwealth/State councils. While some goals and programs were similar, CEPA had much less power and fewer resources than the US EPA. The agency had a simpler institutional structure and was designed to facilitate rather than an enforce. While the rhetoric of ESD was constantly invoked, the role of CEPA was never clearly explained, although, as in the US, some programs seemed to strike a chord with ESD policy.

Programs

As with the US EPA, the programs and practices of CEPA were a response to the impacts of industrial production on the environment and society. The way this response manifested itself in particular actions was influenced not only by the nature of the impact but also by the context and space provided by pre-existing technical, economic, social and political institutions. The prevailing administrative discourses of the state, the pro-development discourses of business, and precautionary ecological discourses of the green movement also had a major impact on the shape of the response.

In general, the Commonwealth has been more reluctant to impose environmental regulations on industry than the US Congress and the reason for this are manifold. In the first place, the US invests far more in the development of high technology than Australia and there is a much stronger culture of industrial innovation in

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[33] DEST, "Environment Portfolio Environment Program Forward Estimates",
[http://www.erin.gov.au/portfolio/budget/budget96/statement/appndx2.htm], August 21, 1996.

production technology.[34] This gives US industry a greater capacity to creatively respond to the demands of regulation. In the second place, Australia has a smaller domestic economy that is relatively more exposed to the world market.[35] This means that the US economy is more robust, which gives the US government more room to manoeuvre. In the third place, the Commonwealth is on uncertain ground constitutionally and does not have either a specific environmental power or (unlike the USA) a general power that can be easily adapted to environmental intervention.[36] Finally, the loose party structure of the US provides more opportunities for injecting new environmental initiatives into the legislative process than are available with the tight party discipline of Australia.

The relative fragility of the economy, and the political vulnerability of the Commonwealth, have translated in to a more dominant position for business in policy making in the institutional context of Australia. This may explain the shift in environment protection discourse away from command and control regulations towards economic incentives and business-state partnerships in the 1980s. New initiatives were more modestly aimed at preventing environmental damage by promoting better production and consumption practices. These were parallel to some of the later US programs discussed in chapters 3 and 4, but underlying the Australian programs was a discourse about the role of the state being to facilitate rather than regulate business.

Industry takes resources (natural, capital, revenue, labour and knowledge) and combines them in different ways to produce goods and services, income for employees and investors, and waste. Some outputs may become resources for other firms later on. The implicit aim of state environment protection programs is to intercept and alter the flow of these resources through society so that their impact on the environment is reduced. This lends itself to a trans-structural

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[34]Organisation for Economic Co-operation and Development [OECD] *Industrial Policy in OECD Countries: Annual Review 1993,* (OECD, Paris, 1993), pp. 121-129.

[35] Central Intelligence Agency, *World Factbook 1996,*
[http://www.odci.gov/cia/publications/nsolo/factbook], June 4, 1997

[36] Kenneth Murchison, "Environmental Law in Australia and the United States: A Comparative Overview", *Environmental and Planning Law Journal,* Part I (June, 1994), Vol. 11, No. 3, pp. 179-192, and Part II (August, 1994), Vol. 11, No. 5, pp. 254-273.

analysis of resource flow diversion, but the modesty and brevity of CEPA and its programs make a comprehensive analysis of its effectiveness difficult.

In 1992 CEPA began to develop the National Pollution Inventory to alter the flow of knowledge between business, government and the community. It was a much smaller version of the US Toxics Release Inventory and was only intended to cover 36 substances in the first instance, rising to 90 in July 2000, compared to the TRI's 640.[37] Even so there was considerable resistance from business and by 1998 only a small trial website had been established.[38] The project was eventually handed over to the National Environment Protection Council and the first full data will not be available to the public until the year 2000.[39]

With regards to the flow of knowledge, capital, and natural resources, in August 1993 the agency announced that it would spend $760,000 over 3 years to fund several EcoReDesign projects at RMIT's Centre for Design. The idea was to undertake a joint venture with four to six companies to work with the centre in redesigning products to be more environmentally friendly. The project would begin with a whole life-cycle analysis of raw material extraction and use, production, consumption and disposal.[40] This was in line with the ESD manufacturing working group's recommendation. By June 1994, a joint project with Kambrook was under way to design a plastic kettle that was easier to recycle.[41] This sort of project was not meant to provide a solution to all current technical and environmental problems. It was more of an attempt to seed green technical knowledge into the manufacturing sector at the design stage in the hopes of encouraging imitation by other companies. In any case, the goals of the project were quite modest given the depth of environmental problems.

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[37] Environment Australia, "Strategic Directions" , chapter 1 in *Budget 1999-2000: Investing in our Natural and Cultural Heritage,* [http://www.nla.gov.au/budget/ministerial/ch1/ch1.html], 1999, p.15.
[38] Environment Australia, Environment Protection Group, *National Pollution Inventory,* [http://www.environment.gov.au/epg/npi/home.html], April 7, 1999.
[39] National Environment Protection Council, *National Pollutant Inventory,* [http://www.nepc.gov.au/npi/], 27 February 1998.
[40] Anon., "CEPA to Help develop Green Products", *Greenweek,* (August 24, 1993) p. 6.

On the capital front, in June 1993 CEPA and the Australian Taxation Office launched a booklet detailing the available tax deductions for capital investment in cleaner technology. In particular, it targeted expenditure on avoiding, treating or cleaning up waste. It also included deductions for the costs of environmental audits, monitoring and the implementation of environmental management plans.[42] Using tax incentives to encourage business to act in certain ways is an attempt to appeal to its constructed interest in cost cutting.

The tax incentive approach has been tried before. From 1984 the Commonwealth offered a 150% tax deduction for research and development by industry. Despite this, private investment in research and development remained relatively low. From 1986 to 1988, the percentage of production re-invested in R&D by the manufacturing sector was only 0.6% in Australia, compared to 3.4% in the USA. The rate of investment in high technology (electronics, pharmaceutical, motor vehicles, non-metallic minerals and petroleum refining) was 11.8% for the US but only 2.4% for Australia.[43] This suggests that the response by the manufacturing industry to incentives for investment in cleaner technology may be somewhat lukewarm. The 150% tax deduction was reduced to 125% in the new Howard government's 1996/97 budget.

The question of the effectiveness of state intervention was addressed by the Australian Manufacturing Council (AMC) when it compared firms in New Zealand and Australia to determine what made them adopt Best Practice. Despite having substantially different tax regimes (New Zealand has a GST and dropped its tariffs faster than Australia) the proportion of firms achieving best practice was about the same. This led to misguided suggestions that government policies have very limited impact on the behaviour of business but the report findings do not support this argument.[44]

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[41] Centre for Design at RMIT, *Job Description for Project Coordinator - EcoReDesign*, (Royal Melbourne Institute of Technology, June 1994).

[42] Anon., "Booklet tells how to make environmental tax claims", *Greenweek*, (July 6, 1993), p. 6.

[43] Organisation for Economic Co-operation and Development [OECD] *Industrial Policy in OECD Countries: Annual Review 1993*, (OECD, Paris, 1993), p. 127.

[44] George Megalogenis, "Economy no worse off with no GST", *The Australian*, (Friday, June 24, 1994), p. 4.

While the study did find that many firms change in response to an external crisis, it also pointed out that these crises may be induced by lowering tariffs, changing infrastructure costs, economic downturns and exchange rate fluctuations.[45] Clearly the state can influence these factors, particularly tariffs and infrastructure costs. Further, many of the examples cited in the report have used government programs to achieve Best Practice.[46] The reliance on government support is also acknowledged in the report's conclusion.[47] The AMC report stresses the importance of the internal management culture of a firm with a consultative approach considered to be a sign of preparedness to improve and innovate.[48]

Another CEPA initiative was a series of workshops that introduced small and medium sized business to the benefits of cleaner production. The project consisted of about 30 workshops held in regional centres as well as capital cities each year.[49] These workshops were part of broader cleaner production campaign launched in 1993 that consisted of: the workshop program; the creation and distribution of a Cleaner Production information kit among business, government, environmental groups and the education sector; commissioning a series of cleaner production handbooks by the Australian Chamber of Manufacturers; the cleaner production demonstration project (in which CEPA provided consultants to review and improve 10 leading manufacturing operations over two years); and the EcoReDesign project.[50] The cleaner production campaign was itself part of the *Cleaner Australia 2001* campaign being run by CEPA.[51] There was also an on-

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[45] Australian Manufacturing Council, *Leading the Way: A Study of Best Manufacturing Practices in Australia and New Zealand,* (AMC, Melbourne, 1994), pp. iv-v, 21 & 71.
[46] AMC, pp. 32, 43, 53 & 56.
[47] AMC, p. 74.
[48] AMC, pp. 25-31.
[49] Anon., "CEPA Launches Workshops to Help Business Introduce Environmentally Sound Processes", *International Environment Reporter,* (Washington DC, February 23, 1994), pp. 186-187.
[50] Gary Codner, "Cleaner production holds the key to achieving sustainable development", *The Age,* (Melbourne, August 30, 1993), p. 7.
[51] Environment Protection Agency, *Facts Sheet: The EPA and Cleaner Production,* (Environment Protection agency, Canberra, July 1994).

line National Cleaner Production database which includes a series of case studies of firms that have saved money while reducing their environmental impact.[52]

The labour component of production has been somewhat neglected by CEPA. According to the ESD principles the impacts of development on labour should be considered on the grounds of occupational safety and the desire for more participatory decision making structures. While promotional material for the Cleaner Production program does make passing mention of these factors, it does not appear to be a mainstream concern.[53] Under the Hawke government, the Commonwealth pursued these issues in other portfolios with initiatives such as: continued support for participatory occupational health and safety legislation; establishing Worksafe Australia to inform both employer and employee safety committees; and conducting a joint ACTU/Trade Development Commission study into industrial democracy initiatives in Europe.[54] The economic rationalist discourse of the current Howard government does not support these initiatives.

On the whole, CEPA appears to have left labour initiatives in the hands of other sections of the state. This compartmentalisation may be due to its limited resources and may also be another manifestation of governmentality at work. CEPA did initiate joint education programs with the Automotive, Food, Metals and Engineering Union at two industrial sites. While management is reported to be supportive of this venture, there is no indication that it is a major industrial democracy initiative.[55] Having targeted both managers and consumers in its programs, it would be logical to also include the labour movement. Such a move could broaden the role of union activity in the same way that occupational health and safety legislation did in the 1980s. On the other hand, neglecting the role of

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[52] DEST, "National Cleaner Production Database (Australia)"
[http://www.erin.gov.au/portfolio/epa/environet/ncpd/auscase_studies.html].
[53] *Cleaner Production: The Bottom Line* [Video produced for the EPA by the ANU Instructional Resources Unit, Canberra, 1993). Includes a reference to Blackmores' staff consultation and information exchange initiative.
[54] ACTU/TDC, *Australia Reconstructed*, (Australian Government Publishing Service, Canberra, 1987).
[55] Environment Protection Agency, "EPA works with Unions for workplace environmental improvements", *EPA News*, (March 1995), p. 9.

labour in production could undermine attempts to green the corporate culture and discourse of business.

The now defunct Environmental Choice labelling program sought to influence the revenue of firms by altering the flow of knowledge to consumers. The idea was to give more information about the environmental impacts of products on the market and draw on green consumer discourses.[56] Unfortunately there were major problems with the way the scheme was structured. The Environmental Choice logo could be placed on any item which is deemed to make accurate claims about its environmental impact. Thus a product can gain accreditation even if it omitted pertinent information but includes trivial but accurate data. To be effective, the scheme needed some sort of rating for the environmental impact of both product and process. The main difficulty with such a scheme would be the cost of policing and monitoring the truth of the claims.

It is difficult to give a more detailed appraisal of the effectiveness of CEPA's programs. The information presented in Chapters three and four suggests that similar actions in the USA had some positive impact, although the benefits were not always as much as anticipated. The most enduring program which CEPA took over was the Commonwealth Environmental Impact Assessment (EIA) procedure. This is worth discussing in more detail because there has been a considerable amount of data on the effectiveness of EIA in both Australia and the USA.

Governmentality and EIA Routines

Environmental Impact Assessment (EIA) represents one of the most concerted attempts to use knowledge to change the way industry operates. It provides a prime example of the underlying governmentality of state institutions that rely on routines and calculations in their response to constructed problems. The basic concept of EIA is to study proposed developments, identify any potential environmental issues, and modify the project at the planning stage to avoid or

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[56] US EPA, "Environmental Choice Australia," in *Status Report on the Use of Environmental Labels Worldwide,* (US EPA, Washington DC, 1993), pp. 131-134.

minimise both the negative environmental impacts and conflict.[57] The approach had its origins in the USA in the National Environment Policy Act of 1969.[58]

The history of EIA in Australia tracks that of the US, but generally lags a few years behind. As mentioned earlier, Commonwealth EIA procedures were created in 1974 under the Environment Protection (Impact of Proposals) Act. These procedures covered any project in which the Commonwealth government was directly involved or which required its approval. Australian State governments developed similar procedures around the same time. As with the US, the procedures were progressively expanded to cover most large scale private sector developments.[59]

By the late 1970s, it was apparent that the two tiered system of State and Commonwealth EIA needed to be coordinated so as to avoid duplication. In 1977, the Commonwealth, South Australia, Victoria, Tasmania and Western Australia all agreed to joint EIA procedures. New South Wales agreed in 1983 and the Northern Territory in 1990.[60] The 1992 Intergovernmental Agreement on the Environment was supposed to allow for greater cooperation and consistency in environmental legislation at all levels of government. It included the framework for a more detailed agreement on joint EIA procedures.[61] In late 1996 the Commonwealth announced that it would limit its role to projects with both a high degree of national importance and major environmental significance. This has given the prime assessment role to the States.

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[57] ANZECC, *A National Approach to Environmental Impact Assessment in Australia*, (Australian Government Publishing Service, Canberra, October 1991), p. 2.
[58] Daniel Dreyfus & Helen Ingram, "The National Environmental Policy Act: A View of Intent and Practice", in *Enclosing the Environment: NEPA's Transformation of Conservation into Environmentalism*, ed. Channing Kury, (Natural Resources Journal: 25th Anniversary. Anthology, University of New Mexico: School of Law, Alburquerque, 1985), p. 56.
[59] Crommelin, p. 7.
[60] Crommelin, pp. 8-9; Environment Protection Agency, *Public Review of the Commonwealth Environment Impact assessment Process: Main Discussion Paper*, (Australian Government Publishing Service, Canberra, November 1994), pp. 60-61.
[61] EPA, *Public Review*, p.61.

State and Commonwealth EIA procedures are remarkably similar.[62] In general, a developer proposes a new project that requires the approval of at least one level of government before it can proceed. The developer then approaches either the Local Council or the relevant State government department. The project may require the approval of the equivalent Commonwealth institution if it entails factors such as foreign investment, export licenses, or access to World Heritage areas. An executive decision is then made by the department approached, or the minister who is responsible for the department, as to whether the proposal may entail impacts that are environmentally significant. If this is likely, the minister will designate one organisation as the proponent and refer the project for assessment by the department of environment or the EPA (depending on which level of government is involved).

The environmental institution will then seek some sort of clarification from the proponent about the project. At the Commonwealth level, the proponent submits a notice of intent that summarises the project. The agency then recommends either that the project proceed within existing guidelines or that it needs assessment. If the project requires a full EIA, the proponent will be asked to prepare an Environmental Impact Statement (EIS). This document is supposed to assess the environment that is to be affected, detail the productive activity to be undertaken, outline the likely impact of the development and list the steps to be taken to mitigate this impact. The EIS is prepared by the proponent or a consultant engaged by the proponent. A draft EIS is released for public comment and review by other departments. The proponent is then required to produce a revised or supplementary EIS based on this input. The final EIS is assessed by the agency and a report given to the environment minister recommending the appropriate action. The environment minister then advises the minister of the department originally approached under what conditions the project should proceed.

In theory, a project should only proceed if the relevant State or Commonwealth Minister for the Environment is satisfied that: (1) the final EIS is satisfactory; (2)

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[62] ANZECC, pp. 4-9, and; Barry Carbon, *Environmental Protection*, (Western Australian Environmental Protection Authority, Perth, July 1992), pp. 30-32.

the environmental impacts are acceptable; (3) the strategy for mitigating environmental impacts outlined is adequate, and; (4) the mitigation strategy will be put into practice by both the developer and operator.

At the Commonwealth level there are two other alternatives to the preparation of an EIS. One is the preparation of a smaller statement for projects that are less likely to be damaging, called a Public Environment Report. This is a scaled down version of the EIA procedure and is generally faster. The other option is a public inquiry. Where an EIS is required under both State and Commonwealth jurisdictions, there is usually an agreement to submit only one EIS and undergo one set of hearings.[63]

EIA procedures appear to be somewhat cumbersome and have attracted a considerable degree of criticism. The existence of many conflicting claims make it difficult to assess their true effect. The approach adopted here is to triangulate the claims made by business with criticisms of the green movement and the data produced by academic investigation. This is in accord with the method outlined in chapter one and should at least partially compensate for the impact of the variety of discourses deployed around environmental disputes.

One of the first disputes about EIA procedures is the adequacy of the number of projects affected. Business claims that too many developments are being held up, while environmentalists claim that not enough projects are being subjected to full EIS. From 1974 to 1993, 2,600 proposals had been considered environmentally significant under the Commonwealth legislation but only 132 EIS's had been prepared.[64] In the USA 80-90% of development proposals do not undergo EIA.[65] These figures tend to support the environmentalist's case rather than business.

Another dispute arises over the time taken to undertake the EIA process. Business has claimed that EIA procedures unnecessarily delay project approvals.

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[63] Environment Protection Agency, *Facts Sheet: Environmental Impact Assessment* (AGPS, Canberra, 1994).
[64] EPA, *Review,*, p. 56.

Environmentalists complain that they often don't have enough time to properly review an EIS. It is difficult to give a definite figure on how long an approval takes, since this will be largely determined by how long it takes to prepare the particular EIS. At the Commonwealth level, CEPA aimed to respond to the initial notice of intention within 20 working days. After receipt of the EIS there is a 28 day period of public comment, then the final decision is made within 42 days. This makes the total time of state involvement about 3 months for the minority of projects which are required to prepare an EIS, other projects are approved more quickly.[66] A recent South Australian study found that the average time for the total EIS process was 2 years, although more than 71% of this time was due to the proponent, not the state institution.[67]

During the 1993 Commonwealth election, it was claimed that 20 major projects were being held up by the "green tape" of the environmental approvals process.[68] In a rebuttal to this allegation, the then minister for the Environment, Ros Kelly, pointed out that none of the projects had been rejected on environmental grounds. Some of them had not got off the company drawing board, some had not gone ahead for economic reasons and none of them were going through the EIA process.[69] This suggests that such claims are based more in anti-environmental discourses rather than what is actually happening.

Most major development projects take several years of planning, costing and financing before construction work actually begins. The preparation of an EIS can often be incorporated as part of this internal process and the few months of state involvement usually runs concurrently with these other preparations. Both Labor and Liberal Commonwealth governments have even been willing to accelerate EIA procedures.

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[65] Ian Thomas, *Environmental Impact Assessment in Australia: Theory and Practice*, (Federation Press, Sydney, 1996), p. 19.
[66] EPA, *Review*, pp. 58-60.
[67] Nick Harvey & Karen Ferguson, *Environmental Impact Assessment in South Australia: Towards 2000*, (The Planning Education Foundation of South Australia, Working Paper No. 4, Adelaide, July 1994), pp. 19-20.
[68] Business Council of Australia, "A Federal Environment Protection Agency: The Question Remains", *Business Council Bulletin*, (September 1991), No. 79, p. 37.

In 1992 the Project Facilitation Unit was created within the Department of Prime Minister and Cabinet. This unit was been given the task of fast-tracking the approvals process for any project valued at more than $50 million. One example of this approach was the McArthur River mine project in the Northern Territory, which was first proposed in March 1992. An EIS was prepared under the Northern Territory legislation and the project was approved in August after only one week of review by the Commonwealth EPA.[70] Hence there was only five months between the proponent first approaching the government and the final environmental approval.

One of the other complaints that business has about the EIA process is the fact that they have to pay for the preparation of the EIS document. It is often claimed that this adds substantially to the cost of the project since expert consultants often have to be employed. One US study found that average cost of preparing an EIS was less than 0.2% of the total construction cost. The study also found that the changes that were brought about in the project because of suggestions at the public review stage reduced the costs of the project in more than half of the cases surveyed. These cost reductions more than offset the cost of preparing the EIS and in one instance the costs of a project were reduced by more than 50%.[71] These figures suggest that in general, the preparation of an EIS is an insignificant cost to development projects as a whole. Further, it may often be the case that the process can substantially reduce the costs of a project.

Another point of criticism is whether an EIS can construct an adequate model of the environment in which a development is to take place or accurately predict what impacts will arise from the development. The first problem can be seen in the need for base-line data to understand the environment that exists prior to a development intruding. A base-line study would include a description of the physical environment, including the geology of major land forms, water drainage

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[69] Ros Kelly, *Speech By Ros Kelly Australian Minister for the Environment, Sport and Territories,* (International Environment Forum, Yale Club of New York, 23 April, 1993).
[70] Toyne, pp. 161-166.
[71] Thomas, p. 20.

patterns, mineral deposits, etc. It would also look at the biology of the area, such as the type and extent of vegetation cover and the network of flora and fauna species present both on land and in the surface water. The climate may also be a significant factor in terms of temperatures, rainfalls wind velocities and directions.

From a scientific point of view, a full understanding of even a small section of the environment would take many years to allow for seasonal and cyclical variations. The population of animal species, for example, can fluctuate dramatically from winter to summer and may be further affected by periodic droughts or floods. Such data needs to be collected from regular surveys of the area in order to trap and tag animals, measure the variations in plant cover, and test the chemical make-up of the air, land and water. Aerial surveys can also be important, particularly if the area already has some urban development.

Developers clearly want to avoid spending several years collecting and analysing this sort of data. The delay would cost them a great deal of money in forgone revenue. Instead they use information that is already available. Climate figures are often available from the Bureau of Meteorology, the Department of Lands has many aerial surveys on record already, and there may have been other studies of the area by agencies such as the CSIRO. The developer is then able to take what information there is, supplement it with the results of a shortened survey, and base the EIS on this data.

Clearly the economic discourse that favours a speedy approval works in opposition to the scientific discourse that values thoroughness. This means that the understanding of the existing environment within an EIS will almost always be partial. The contrast between the scientific and EIS approach was highlighted when a long term study by the CSIRO assessed Kakadu Stage III as a high value conservation zone and was critical of the Coronation Hill EIS which down played this value. This suggests that EIS is flawed at the most fundamental level of accurately representing the environment prior to development.[72]

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[72] Toyne, pp. 134-136.

The next problem arises from the difficulty of predicting what impacts will arise from the development. In the Wesley Vale Pulp Mill case, the EIS completely neglected to raise the issue of dioxins. It was also criticised in a confidential report by the Tasmanian Department of Deep Sea Fisheries for ignoring the effects of tidal flows on the dispersal of effluent.[73] The point to note here is that significant impacts may be overlooked in an EIS, either deliberately or by accident. Such omissions are evidence of a pro-development discourse at work.

This issue brings us to the next criticism of the EIA process. That is, if the proponent is made responsible for the preparation of an EIS, it will be biased in favour of the development rather than an independent, rational appraisal of the likely outcome of the project.

Both ANZECC and CEPA argued that proponents should be responsible for the EIS for three main reasons.[74] First, under the polluter pays principle, the developer should bear the cost of providing all relative information to the decision making authority. The second argument is that the proponent understands the project better than anyone else and so is in the best position to prepare the EIS. Finally, it is argued that by having to prepare the EIS, the proponent is forced to confront the environmental effects of the project and review their objectives which helps to sensitise them to the need to avoid environmental damage. Despite these arguments, it appears that many EIS's are often no more than marketing documents for the project. There is little attempt to be impartial and information that is relevant but damaging (as in the Wesley Vale case) is often omitted or played down. This makes some sort of external review of the document essential.

Once the EIS is prepared, it is subjected first to public review, then to assessment by an environment agency. The problem with the public review process, however, is that many organisations may not have the time, resources or expertise to pick

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[73] Nick Economou, "Problems in Environmental Policy Creation: Tasmania's Wesley Vale Pulp Mill Dispute," in Ken Walker (ed), *Australian Environmental Policy*, (University of NSW Press, Kensington, 1992), pp. 46-48.
[74] ANZECC, pp. 6-7, and; EPA, *Review*, p. 39.

up significant errors in the original EIS. Further, the EIA process may be fast-tracked, as with McArthur River, or conducted in secret, as with Wesley Vale. In the Wesley Vale case the Department of Deep Sea Fisheries report was never formally released, it had to be leaked for the public to raise the effluent dispersal issue. Secrecy and fast-tracking significantly reduce the already constrained ability of public review to find flaws in an EIS.

The second point is that the relevant agencies may not have the expertise to properly review the final EIS. Often consultants are hired from outside to make up for this lack, but the question remains, are there people available who have sufficient expertise to understand the economic, environmental, social and technical aspects of the development?

A final point regarding the EIA process is that even if everything goes as it should there is no obligation on the part of the relevant minister to follow the advice of the EIS assessment report. The Environment minister's recommendations can simply be ignored. Further, when the minister does follow such advice, there is little or no follow up on the project to make sure the recommendations are carried out by developers.

Criticisms of EIA procedures in Australia led to an ANZECC discussion paper in 1991. The main thrust of this report was to argue for uniform and effective national EIA procedures. While the report created a set of guiding principles for proponents, the public, authorities and government, it did not really come to grips with the fundamental problems exhibited by EIA. This was left to a CEPA review that reported in November 1994.

In terms of addressing the very low proportion of major projects that undergo assessment, the CEPA report made three significant recommendations. First, that the criteria for determining whether a project is environmentally significant should be clearly set down. Second, the minister for the environment should be able to initiate the EIA process without having to wait for a referral from another

department. Third, it suggested that the public should be involved in the early stages when determining the scope of the assessment.[75]

In terms of delays, the report suggested upper limits on the time taken by public and review bodies. It also recommended a uniform national approach to EIA to avoid any delays from duplication.[76] It didn't really address the adequacy of the EIS from a scientific point of view. There appears to be an assumption that the state is clever enough to understand both the environment and any negative impacts within a relatively short period of time. This is an ongoing problem because both business and the state always have to act on imperfect information. It is also evidence of governmentality at work (see chapter two).

The CEPA report defends the preparation of the EIS by the proponent and therefore implicitly accepts the inherent pro-development bias. Thomas has proposed that EIA should be considered like an adversarial court case. The draft EIS is the case for, the public review generates the case against.[77] This is in effect what happens, however, the judge (in this case the state agency or Minister) often appears to favour the developer and the opposition often have difficulties finding the resources and expertise to effectively argue their case. The CEPA report partially addresses this by suggesting that grants be paid to public organisations involved in the EIA process to fund their research. There is also a commitment to "transparent" review processes which may reduce the level of secrecy surrounding some projects. These two recommendations would certainly help improve the adequacy of the review process.[78] There is also a recommendation that projects which undergo an EIA should be subjected to follow-up studies and inspections. Who would conduct these and when is still open to debate.

Overall the CEPA review suggested that some of the problems in the EIA process could be addressed. It should be remembered that this document, like many other government reports, entails a hidden political agenda. In this case there are several

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[75] EPA, *Review,* pp. 18-23 & 32.

[76] EPA, *Review,* p. iii.

[77] Ian Thomas, *Environmental Impact Assessment: Australian Perspectives and Practice,* (Graduate School of Environmental Science, Monash University, Victoria, 1987), pp. 70-73.

recommendations for the expansion of Commonwealth powers and an increased role for CEPA, which commissioned the report.[79] It appears that the current government has ignored these recommendations and has effectively reduced Commonwealth involvement in EIA. This is in line with the conservative discourse that supports a "State rights" approach to environmental regulation.

This analysis suggests three main points. First, EIA is an attempt by state institutions to pre-empt potential problems and conflicts. Its limitations are an indication of the limits of state power and knowledge. Second, while EIA doesn't appear to fulfil hopes for wholly rational appraisal of projects it is not as cumbersome as business pretends. Third, EIA offers some benefits for business because: it anticipates and sometimes helps to avoid conflict; it improves the environmental credibility of business, and; it can often save business money. While there are problems with EIA, it appears to be better to have an imperfect process than none at all. The EIA routines outlined are also a prime example of the governmentality of state institutions in their response to environmental issues.

The End of CEPA

After the federal election of 1996, the new Howard Coalition government announced a major review of the environment portfolio. The result was a substantial cut to CEPA's funding and a loss of about one third of its staff. CEPA was downgraded to the status of an "Environment Protection Group" within the department and the various environmental functions were gathered together under a new label of "Environment Australia". Funding for general environment programs were halved over four years unless they were part of the National Heritage Trust. This Trust was a $1 billion fund set up after the partial sale of Telstra and targeted at rural land rehabilitation, coastal clean up, river care programs, revegetation, World Heritage area management and endangered species protection projects.

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[78] EPA, *Review*, pp. 40-42.
[79] EPA, *Review*, pp. 18-20.

In 1998 the government commenced a major rewrite of all Commonwealth environmental laws that reduced its involvement in environmental regulation. A great deal of responsibility was handed back to the States, particularly with regards to EIA.[80] The Howard government was returned to office after the 1998 Commonwealth election and the bill was before the Senate in April 1999. These legislative, funding and restructuring changes suggest that the demise of the EPA was part of a broader political agenda that had been heavily influenced by the conservative "States rights" discourse.

3) A National Council

Goals, Structure, Powers & Programs

The initial establishment of CEPA was only intended to be the first phase of the Commonwealth response to ESD. Three possibilities for the second phase were then discussed:

> (a) agreement by the Commonwealth, States and Territories to implement standards agreed by the Australian and New Zealand Environment Council, leaving the Council to undertake appropriate consultation with other councils, industry and interested parties;

> (b) establishment of a Commonwealth-State-Territory Ministerial body with a standard-setting role, supported by complementary legislation or a referral of powers by the States to the Commonwealth for the purpose of creating standards - the precise role would depend upon the terms of any such referral; secretariat support for this body to be provided by the Commonwealth EPA; and

> (c) reliance on Commonwealth powers to implement national standards, based either on agreements achieved by one of the means suggested above or, where there is no agreement, on Commonwealth decisions based on the outcome of any collaborative processes and any other relevant factors such as international developments and obligations.

> Option (b) appears to be the most practicable at this stage.[81]

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[80] Department of the Environment Legislation Reform Taskforce, *Reform of Commonwealth Environment Legislation: Consultation Paper,* (AGPS, Canberra, 1998), pp. 2, 4, 8-12, 21.

Option (a) basically represented a do nothing approach. ANZECC was already up and running but its decisions and recommendations were not binding. Thus it left environment protection standards to the State and Territory governments. Option (c) was similar to the USA approach. Option (b) had emerged from the 1990 Special Premiers Conference and was included in the Intergovernmental Agreement on the Environment, which was finally signed in May 1992. This agreement was part of the Hawke government's discourse on "new federalism" that sought to achieve consensus between the Commonwealth and the states on major policy issues.

The agreement gave a general commitment by all levels of government to the principles of ESD.[82] The Commonwealth promised to consult other levels of government before entering into international treaties on the environment in return for the recognition that it could legitimately act on environmental matters of national importance.[83] There was in principle acceptance of the precautionary principle, the polluter pays principle, the whole life-cycle approach to assessing environmental impacts, and the use of market mechanisms in achieving sustainable development.[84] Much of this had already been recommended by the ESD working groups.[85]

There were nine schedules attached to the agreement dealing with: data collection and handling; resource assessment, land use and approval processes; environmental impact assessment; national environment protection measures; climate change; biological diversity; national estate; world heritage, and; nature conservation. Schedule 4 outlined a proposed National Environment Protection Authority. The authority was to include a council of one minister from each State and Territory and would be chaired by the Commonwealth minister for the environment. A standing committee to oversee the day-to-day operations of the authority would consists of members appointed by each minister and one

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[81] DASETT, p.19.
[82] Special Premiers' Conference, *Intergovernmental Agreement on the Environment* [IGAE], (Australian Government Publishing Service, Canberra, May 1992), p. 2 & 13.
[83] IGAE, p. 6.
[84] IGAE, p. 14.
[85] ESD Manufacturing Working Group, pp. 52-53.

appointed by the Local Government Association. A permanent secretariat would be established and other staff would be seconded from the public sector on an ad hoc basis. Executive decisions would require a two thirds majority of the ministerial council and would be binding on all members.[86]

> The Authority may establish measures for the protection of the environment for the benefit of the people of Australia for:
> (i) ambient air quality;
> (ii) ambient marine, estuarine, and freshwater quality;
> (iii) noise related to protecting amenity where variations in measures would have adverse effect on national markets for goods and services;
> (iv) general guidelines for the assessment of site contamination;
> (v) the environmental impacts associated with hazardous wastes;
> (vi) motor vehicle emissions;
> (vii) the reuse and recycling of used materials; and shall monitor and report on their implementation and effectiveness.[87]

Although the Authority could set national standards, the enforcement of these standards would still fall to the relevant State, Territory or Commonwealth institutions, within their established jurisdictions.[88] Any jurisdiction can set higher standards for compliance. State and Commonwealth governments passed the enabling legislation and restructured relevant government institutions shortly after the agreement was signed.[89] Queensland was the first to introduce the relevant legislation, South Australia established a new State Environment Protection Authority in 1993, New South Wales reformed its State Pollution Control Commission into an EPA, and Victoria restructured its existing EPA. The relevant Commonwealth legislation was passed by both houses of parliament and given royal assent on 20 October 1994.[90]

In late 1993 the new WA Liberal government decided to withdraw from Schedule 4. This prompted the revision of the agreement and an alternative National Environment Protection Council (NEPC) was agreed to between the remaining states, keeping the same structure and functions. In January of 1995, it was

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[86] IGAE, pp. 24-25.
[87] IGAE, p. 25.
[88] IGAE, p. 27.
[89] IGAE, p. 28.

announced that the NEPC would be based in Adelaide. Five years after its proposal at the 1990 Special Premiers Conference, the inaugural NEPC meeting was held. In 1996, WA rejoined the process and the council began working on two National Environment Protection Measures (NEPMs): national air quality standards for a handful of pollutants, and; guidelines for the transport of hazardous waste. It also took over responsibility for the new National Pollution Inventory from CEPA.

The extreme youth of the council makes it impossible to assess the effectiveness of its programs in detail. In comparison to the US, however, these initiatives appear to be very modest. The main debate concerning the council revolved around what structure the institution should take. An exploration of this debate should reveal the institutional context and the various discourses at work regarding national environment protection.

Discourses and Institutional Design

All the three structures outlined by the CEPA discussion paper were criticised by the various political actors. Option (a) was where standards are discussed via ANZECC with enforcement being voluntary. This was the situation prior to the NEPC, which gave a high degree of autonomy to State governments in choosing whether to adopt or enforce standards. This arrangement has been criticised by the green movement for failing to develop national standards and providing no mechanism for bringing recalcitrant states into line. The greens point out that after 20 years of joint ministerial councils such as ANZECC, there are still vastly differing environmental standards and regulations across the country.[91] Business was also dissatisfied with this situation. It demanded a uniform and streamlined approach to the approval of development projects and was critical of the current arrangements for failing to deliver on this point.[92]

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[90] Hansard, *House of Representatives and Senate: 37th Parliament, 4-5th Sessions*, (Australian Government Publishing Service, Canberra, 1994).
[91] Paul Rutherford and Rob Fowler, "The Federal EPA: States vs Commonwealth", *Chain Reaction*, (March 1992), No. 65, p. 20.

Option (c) was to have a straight forward Commonwealth authority that imposed national standards on the states. The greens favoured this option and argued that the Commonwealth may already have sufficient constitutional power to take such action. Even though there is no explicit environment power granted to the government, they suggest that the Commonwealth could rely on: the corporations power to regulate actions of industry; the trade and commerce power to regulate exports and imports; the taxation and expenditure power to deter or encourage activity; the external affairs power to enforce environmental treaties; and the already existing legislative arrangements on EIAs, hazardous waste, sea dumping, nuclear materials, and ozone depleting substances.[93] If these powers are not sufficient it has been suggested that the Commonwealth could be granted an explicit constitutional environmental power via a referendum.[94] The Business Council, while demanding uniform standards, was unwilling to endorse the expansion of Commonwealth powers.[95]

Brett Odgers, who used the head the NEPC task force within the Commonwealth EPA, argued against a federally imposed agency (option c) on two grounds. First, it would probably be subject to extensive legal challenge in the High Court by State governments who want to protect their jurisdictions. He cited the Queensland government's attempts to stop Commonwealth intervention in the Daintree rain forest through protracted high court appeals as an example. The second point is that imposing a Commonwealth authority excludes legitimate stake-holders from the decision making process.[96] That is, developments have benefits and costs for the community, State governments and Local Councils. The implication is that including locally elected representatives in the regulatory process may make it more responsive to community demands. This second point is questionable given examples such as the refusal of the Tasmanian government

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[92] Business Council of Australia, "A Federal Environment Protection Agency: The Question Remains", *Business Council Bulletin,* (September 1991), No. 79, pp. 36-38.
[93] Rutherford and Fowler, p. 20.
[94] Toyne, pp. 184-185.
[95] Business Council, p. 37.
[96] Interview with Brett Odgers, conducted 21 September, 1994, in Canberra.

to accept the strong disapproval of the Franklin dam expressed by the State referendum in the early 1980s.[97]

This leaves option (b), a cooperative approach, where decisions are taken by a joint Commonwealth/State council (the NEPC) and enforced by State authorities. The green movement criticised this option on three grounds. First, there may be little likelihood of agreement within any joint council on serious but contentious issues. Second, any consensus may constitute the lowest common denominator in environmental standards. Third, the provisions for ensuring that recalcitrant states enforce the standards are too weak.[98]

When interviewed in 1996, the acting Executive Director of the NEPC Services Corporation, John Lambert, rejected these sorts or criticisms. He suggested that the council may encourage bolder action by States because individual Ministers could use majority decisions to shield themselves from individual blame. Further, he suggest that State institutions have more hands on experience with industry and may prove to be a useful source of ideas.[99] Lambert argues that there would be sufficient political pressure within the structure to keep potentially recalcitrant states in line.[100]

In its initial opposition to the NEPC, the West Australian government released its own analysis of the problem that was clearly drawing on the traditional "States rights" discourse. It argued that the diversity of Australia's ecology meant that uniform standards could not be applied to different parts of the country. It also suggested that the extra level of bureaucracy would cost more than any benefit which might be derived. Further, it was claimed that the council would unjustly override the authority of State governments and Local Councils by generating binding majority decisions that could only be overturned by Commonwealth

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[97] Doug Lowe, "A Government Changes", in Roger Green (ed), *Battle for the Franklin,* (Fontana/ACF, Melbourne, 1985), p. 177.

[98] Rutherford and Fowler, p. 20.

[99] Interview with John Lambert at the NEPC in Adelaide, August 20, 1996.

[100] Phone interview with John Lambert, August 15, 1996.

parliament.[101] The preferred WA position was then option (a) and it suggested that competition between State governments would encourage better environmental management as they sought to attract industries that rely on clean environments, such as aquaculture or eco-tourism.[102] Eventually the WA government backed down and joined the NEPC.

Curiously, the Business Council also appeared to argue against this option (b) by suggesting that it would be too bureaucratic.[103] This left business in the position of demanding uniform standards and a streamlined approval process, but objecting to either the existing arrangements, cooperative arrangements, or purely Commonwealth institutions. Such a contradiction may be explained as the product of inconsistent business discourses: pro-development, anti-regulation, and anti-ecology.

To sum up, option (a) left environment protection up to the states and was initially preferred by the WA government, option (b) relies on cooperative but binding arrangements and is preferred by the Commonwealth, and option (c) imposes a strong Commonwealth authority and is preferred by the greens. Business fails to endorse any of these options but offers no clear alternative. What all parties do agree upon is the need to move away from simply policing emission standards toward the prevention of pollution by cleaner production.[104] The final structure of the NEPC and its programs have therefore been heavily influenced by the unique nature of the Australian political and institutional context. The US experience, however, may still offer some indication of the likely effectiveness of this arrangement. The process for creating and enforcing National Environment Protection Measures is very similar to the US Clean Air Act State Implementation Plans. This comparison will be developed further in the next chapter.

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[101] Western Australian Government, *The Proposed National Environment Protection Council (NEPC): Analysis and Criticisms of the Concept by the Government of Western Australia,* (Federalism and the Environment Thought Starter Paper Number 1, Perth, May 1994) p. 1.
[102] WA government, p. 9.
[103] Business Council, p. 38.
[104] WA Government, p. 4, Business Council, p. 36, Rutherford and Fowler, p. 18 & 21, and the federal EPA, *Cleaner Production Facts Sheet.*

Conclusion

Overall, Australia's approach to national environment protection has been quite timid in comparison to the USA. A great deal of responsibility has been left to the States, while the Commonwealth has made only occasional forays into particular issues. The reasons for this timidity can be traced back to major differences in the technical, economic, social, and political institutions and contexts of both countries. These differences leave state institutions in Australia in an even weaker position relative to business than in the USA.

The Commonwealth EPA was a modest and short-lived experiment that was limited by a general lack of resources and formal powers. The new NEPC appears to be a compromise between the conflicting discourses of the different political actors. While these institutional changes have occurred since the development of ESD policy, there has not been a great deal of integration between policy, the structure of institutions and programs. All three appear to have generally developed in apparent isolation despite the shared rhetoric.

Chapter Eight

Putting The Pieces Together

Introduction

Can the preceding analysis and trans-structural theory be used to restructure national agencies so that they are more effective in making industry sustainable? This is the main question addressed by this chapter. The aim is to connect all the successful components of the various programs, policies, institutions and perceptions to answer the original research question and synthesise a practical strategy for the reform of national environment protection institutions in Australia. The data already presented suggests that this project will entail a substantial restructuring of both business and the state.

This chapter is divided into three main sections. Section one considers the specific lessons that the US experience offers Australia regarding effective national environment protection institutions and proposes a method to integrate sustainable development goals into institutional structures. The second section analyses proposals for a more extensive restructuring of the state and business so that their decision making becomes more participatory. This picks up the theoretical debate from chapter two about the impact of discourse on democracy. Section three reviews some of the more promising programs that could be deployed to make industry more sustainable based on both the US and Australian experience. Overall it is argued that with some substantial restructuring, national environment protection institutions can play a significant role in making industry more sustainable. Whether this is enough to avoid major environmental crises in future is another matter.

1) Lessons for Australia from the USA

Despite some significant differences, there is sufficient common ground to make the American experience relevant to the Australian political context. Most of the

debates about specific environmental problems, for example, have been mirrored in Australia and both states are reviewing the effectiveness of national agencies. The goals of the US EPA and NEPC/CEPA were also quite similar. Although the Australian institutions were considerably smaller than their US counterparts, both were guided by external policy bodies (the Council on Environmental Quality or ANZECC) and both were shaped by various versions of a fluctuating "new federalism" discourse.

In terms of specific initiatives, both countries have similar procedures for EIA and both have sought to improve these procedures over the last two decades.[1] America has had a very successful Toxics Release Inventory since 1987 and Australia is in the process of establishing a National Pollution Inventory (NPI). The NPI is considerably smaller than its US counterpart, but the reaction by industry is remarkably similar. The problem of liability for the clean up of contaminated waste sites has been an issue in both countries and was resolved in the US by making the producers, users and disposers of the waste liable under the 1980 Superfund legislation. In Australia, liability was discussed in the ESD Working Group on Manufacturing in 1991 and, despite some dissent, it was recommended that industry should bear no liability for future clean ups if the actual disposal was conducted in accordance with existing laws.[2] This could become a significant financial problem for future Australian governments given the US data.

The similarities mean that the federal US experience, together with the recent forays by the Commonwealth, offer some useful pointers about the effectiveness of intervention by environment protection institutions and how they relate to sustainable development policies. This ultimately takes us back to the original research question of how a national government environment protection organisation can help make industry more sustainable.

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[1] See (Commonwealth) Environment Protection Agency, *Public Review of Commonwealth Environment Impact Assessment Process: Main Discussion Paper*, (AGPS, Canberra, November 1994); and Robert Paehlke and Douglas Torgerson (eds), *Managing Leviathan: Environmental Politics and the Administrative State*, (Belhaven Press, London, 1990).

[2] Ecologically Sustainable Development Working Groups, *Final Report - Manufacturing*, (AGPS, Canberra, November 1991), p. 154.

The Commonwealth and Environment Protection

Since the change of government in 1996 CEPA and the Department of Environment, Sport and Territories (DEST) have been substantially restructured. Two things have become abundantly clear in the current political context. First, there is a need to emphasise the benefits of environmental regulation in order to justify intervention in the face of pervasive anti-regulatory and economic rationalist discourses. Second, it will be necessary to develop a clear role for DEST and environment protection in making industry sustainable.

As was discussed in chapter five, evidence of some economic benefits from environmental regulation is beginning to mount. For more than a decade studies by the OECD have suggested that for economies working below full capacity, the overall short run effect of environmental regulation can be to increase employment and add to GDP. Regulation may also generate welfare benefits from avoiding damage to health, private property and ecosystems that exceed the costs imposed.[3] These findings have been supported by several other studies and organisations and need to be made more accessible to industry in order to help change the dominant business discourse.[4]

Opponents of regulation will point out that the overall positive results mask some unnecessary costs imposed on firms by individual regulations that induce a dead weight loss with no offsetting return or saving (as was noted in chapter five).[5] These sorts of extra costs have indeed been the focus of many economic

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[3] Organisation for Economic Cooperation and Development, *Environment and Economics,* (Results of the International Conference on Environment and Economics, Paris, 18-21 June 1984), pp. 67-68 & 93; see also OECD "Environmental Policies and Employment", summarised by the *Meeting of OECD Environment Policy Committee at Ministerial Level,* [http://www.oecd.org/news_and_events/reference/nw96-15a.htm], 19-20 February, 1996, paragraphs 12-13; and World Commission on Environment and Development, [with additional material from The Commission for the Future], *Our Common Future,* Chair Gro Harlem Brundtland, (Australian Edition, Oxford University Press, Melbourne, 1990 [original: 1987]), p. 255.

[4] See for example the National Commission for Employment Policy, *Environment and Jobs: The Employment Impact of Federal Environmental Investments,* (NCEP Research Report No. 95-02, U.S. Government Printing Office, Washington D.C., April 1995), pp. 21-23.

[5] Karl Case & Ray Fair, *Principles of Economics,* (Prentice-Hall, New Jersey, 1989), pp. 450-55. Roger Waud, Anthony Hocking, Philip Maxwell, & Josef Bonnici, *Economics,* (Australian Edition, Harper & Row, Sydney, 1989), pp. 544-52.

criticisms.[6] Where such impositions are passed on to consumers there is also an equity issue regarding the relatively high impact on low income earners.[7]

The challenge, therefore, is to promote interventions that engage with the predominant economic rationalist discourse among decision makers by: helping to internalise the negative environmental externalities, stimulating innovation, encouraging the more efficient use of raw materials, avoiding a decrease in total economic welfare, and distributing the costs carefully.[8] Programs that promote the economic benefits of cleaner production are one method of meeting this challenge but, as the US experience indicates, there will still have to be a network of well designed and properly enforced regulations that prevent recalcitrant firms from avoiding their responsibilities.[9]

The analysis of the US experience (chapter 5) suggested that effective environmental intervention requires three things:

1. Good coordination between different state institutions.

2. A restructuring of institutions in order to give them the capacity to learn.

3. A clear mission statement and strategy for environment agencies (which could be based on sustainable development concepts).

These lessons can be applied to the Australian political context.

Improving Commonwealth Institutions

Institutional learning and coordination between Commonwealth and State governments is at least theoretically possible within the new NEPC structure. Local government is also included through its participation in the NEPC

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[6] Philip K. Howard, *The Death of Common Sense: How Law is Suffocating America,* (Random House, New York, 1994), p. 34. Arthur Fraas, "The Role of Economic Analysis in Shaping Environmental Policy," *Law and Contemporary Problems,* (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 113.

[7] Janna Thompson, "Sustainability, Justice and Market Relations", in Robyn Eckersley (ed.), *Markets, The State and the Environment,* (Macmillan, Melbourne, 1995), pp. 275-77.

[8] Alan Moran, "Tools of Environmental Policy: Market Instruments versus Command-and-control", in Robyn Eckersley (ed.), *Markets, The State and the Environment,* (Macmillan, Melbourne, 1995), p. 81.

committee.[10] Further, all levels of government report to the Intergovernmental Committee for Ecologically Sustainable Development (ICESD) on their progress in pursuing the *National Strategy for ESD*.[11] What is still required, however, is an organisation to coordinate institutions within the Commonwealth and some mechanism by which they can learn how to apply the principles of sustainable development to areas of responsibility. A revived EPA within DEST could fulfil this role.

Consider the US experience. It was suggested that coordination could be achieved by networking departments and providing them with senior environmental officers.[12] Further, it was pointed out that as far as learning goes, a blend of expertise was required for environmental problem solving.[13] We can combine these proposals and apply them to the Australian Commonwealth public sector. I would suggest that an interdisciplinary Commonwealth expert steering committee (a Haas-like "epistemic community") on sustainable development be established (see Box 8.1).

Box 8.1: Proposed Commonwealth ESD Steering Committee

This committee would be a blend of five different types of expertise, representing the five dimensions (technical, economic, social, political and ecological) of sustainable development.[14]
- One member would be a technical representative who could provide the committee with a knowledge of productive technology and science.
- One member would be from an economics background to ensure that policy recommendations were economically viable.
- Someone with a background in social services would be useful for assessing the social impacts of government intervention and industry activity.
- A political analyst would be able to ensure that the committee operated in accord with the government's broader political agenda.
- Finally, the group could be chaired by a representative of the new EPA who would bring in some expertise on environmental impact assessment and sustainable development policies.

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[9] John Cushman, "Adversaries Back the Current Rules Curbing Pollution," *New York Times*, (Monday, February 12, 1996), p. C11
[10] National Environment Protection Council Service Corporation, *Introducing the National Environment Protection Council*, (NEPC, Adelaide, December 1995), pp. 2-3.
[11] Intergovernmental Committee for Ecologically Sustainable Development, p.1.
[12] National Commission on the Environment, pp. 46-48.
[13] Thomas O. McGarity, "The Internal Structure of EPA Rulemaking," *Law and Contemporary Problems*, (Autumn 1991), Vol. 54, No. 4, [Special Edition, *Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics*, symposium held at Duke University Law School, November 15-16, 1990], pp. 61, 71-90 & 95-9.
[14] World Commission on Environment and Development, p. 87.

The committee would initially be acting as a professional advocacy forum with each member speaking from their own perspective. In order to improve cooperation between members and establish some priorities, a basic training and team building program would be useful so that each member is able to effectively communicate with experts from other disciplines. The committee would report to ICESD on the Commonwealth's progress in implementing the National Strategy for ESD.

Answering to this committee would be a network of ESD steering groups within each major Commonwealth institution (ie. department, agency, authority, utility or enterprise). These groups would mirror the structure of the committee by including members with relevant technical, economic, social, political, and ecological expertise. It would also be appropriate to include at least one representative elected by the institution's employees and one representative of senior management. This would encourage employee feedback and initiatives, as well as demonstrating executive commitment to the group's activities. The groups could work on a part-time basis and go through a similar training and team building program to the expert committee.

The function of these groups would be three-fold:

1. To provide top level policy advice and guidance to the senior executives and heads of each institution (as a consultative body that constantly reviews and recommends improvements to work practices and goals);

2. To provide training and consultation to each institution's work-force so that employees can identify points for improvement and win support for changes. The aim would be to make all employees aware of how ESD principles apply to their individual area of responsibility so that they could act as agents of change; and,

3. To provide a point of consultation for industry, green groups, labour and other interested community groups. This would provide a consistent point of contact for interested parties and allow the injection of fresh ideas and expertise from outside the institution.

In essence, the groups would inject and adapt sustainable development discourse into the web of power relations within each institution.

There are several advantages to this approach. First, the groups offer a forum for blending and aligning the necessary expertise without delaying the day to day operations of the institution. Unlike the US EPA's "Red-Border Review" process, the larger and more time consuming problems would be thrashed out within the group or committee and the outcome could be strategically injected at any point.[15] Second, the groups would allow interested parties to have some input into policy deliberations, without being able to coopt state operations.[16] Finally the groups would enable the concept of sustainable development to be deployed "at the coal face" by helping officers of the institution to understand the ramifications of their work and giving them the flexibility to identify where improvements could be made. This would inject sustainable development at a multiplicity of points within the public sector and encourage the goal to adapt to different administrative environments. Such an approach would overcome the problem of trying to impose a policy goal from the top down and would enable organisations to learn about the problems it deals with. Each institution would remain as autonomous as it is now, but share a similar discourse that collectively draw society towards sustainable development.

The role of a new EPA within DEST would be central to this process. It would have to provide the environmental expertise and support to both the expert committee and the steering groups. It would also have to help train them in sustainable development principles. Further, it could act as a centre for the exchange of knowledge between institutions and link them to organisations like the NEPC, ANZECC, the US EPA, and UNEP. Given the US experience, it would be appropriate for DEST to continue to promote the deployment of cleaner production technologies in industry both directly and through the ESD groups. In effect the new EPA would become the fountainhead of sustainable development discourse in Australia.

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[15] McGarity, pp. 61, 71-90, 95-6.

The network of ESD steering groups directed by the committee and supported by a new EPA within DEST would provide the necessary coordination, learning and priorities that all Commonwealth institutions need if environmental problems are to be tackled effectively. The mission would be to make sustainable development discourse operational at the Commonwealth level and provide an essential link between key environment institutions.

Improving the NEPC

One of the most interesting points of comparison is between the NEPC and the use of State Implementation Plans (SIPs) under the US Clean Air Act. This act made the US EPA responsible for setting national ambient air quality standards, but states could apply to enforce the measures by negotiating SIPs with the agency. The idea was to give states the flexibility to find the best way of achieving the standards set. This is remarkably similar to the NEPC situation where National Environment Protection Measures (NEPMs) would be created by a majority vote of State and Commonwealth environment ministers. Each State would then be responsible for implementing the agreed measures. The first NEPM being developed will set national ambient air quality standards for six major pollutants, which makes the similarity between this system and SIPs even stronger.[17]

The problem with the SIP system was that while more than two thirds of the states negotiated SIPs, very few of them were able to achieve the standards set.[18] Even the threat to hold up federal funding was not able to sway some States.[19] In Australia there is no mechanism for forcing recalcitrant States to comply with the NEPM. The only requirement is for the States to report back to the council

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[16] This was clearly a problem for the US EPA during the first Reagan administration (see chapter 4).

[17] NEPC, *Proposed National Environmental Protection Measure: Ambient Air Quality,* (Information Bulletin, NEPC Adelaide, July 1996).

[18] Rosenbaum, p. 190; McGarity, p. 69; Marc Landy, Marc Roberts & Stephen Thomas, *The Environmental Protection Agency - Asking the Wrong Questions: from Nixon to Clinton,* (Expanded Edition, Oxford University Press, New York, 1994), pp. 205, 249-250; Hedrick Smith, *The Power Game: How Washington Works,* (Fontana/Collins, Glasgow, 1988), p. 504.

[19] Joshua P. Anderson, & Arnold M. Howitt, "Clean Air Act SIPs, Sanctions, and Conformity," *Transportation Quarterly,* (Summer 1995), Vol. 49, No. 3, pp. 67-79.

annually on their progress. This system relies on the hope that States will be willing to comply because they participate in the creation of NEPMs. Further, the States are likely to only set standards that they think are achievable, which is probably a good deal less than is needed for sustainability.[20] It is even possible for a recalcitrant State to vote against a particular NEPM and then refuse to enforce the majority decision. The potential for this problem is very real. Western Australia initially refused to join the NEPC because it did not want to be bound by any majority decision.[21] In 1994 the newly elected South Australian Liberal government announced a one year moratorium on new environmental regulations despite supporting a new State EPA to fit within the NEPC system.

These sorts of problems were common in the USA where southern and mid-western State governments sought to attract or protect polluting industries that might boost their economy.[22] The anti-regulation discourse that claims environmental regulation reduces employment plays a significant role in inhibiting new initiatives. The steel industry in particular was extremely good at using this tactic, despite the fact that national and international studies question the validity of the job reduction discourse.[23] The perceived "threat to employment" exacerbated by the theoretical "demands of the global market" that may push industry off-shore are already regular features of Australian environment policy debates.[24]

[20] *Introducing the National Environment Protection Council,* (NEPC Service Corporation, Adelaide, December 1995), pp. 8-13. Extra information provided by an interview with Brett Odgers, NEPC Taskforce, July 16, 1996.

[21] West Australian Government, *The Proposed National Environment Protection Council (NEPC): Analysis and Criticisms of the Concept by the Government of Western Australia,* (Federalism and the Environment Thought Starter Paper Number 1, Perth, May 1994).

[22] William Ruckelshaus, *US EPA Oral History Interview - 1: William D. Ruckelshaus,* (US EPA History Program, Washington DC, January 1993), pp. 5-7.

[23] Landy, pp. 205, 207 & 222; see also National Commission for Employment Policy, Department of Commerce report and OECD reports previously cited.

[24] Doug McEachern, "Mining companies and the defence of nature", *Chain Reaction,* (May 1995), No. 73-74, p. 19. Business Council of Australia, "A Federal Environment Protection Agency: The Question Remains", *Business Council Bulletin,* (September 1991), No. 79, pp. 36-38. Tim Doyle, "Corporations, power and the environment", *Chain Reaction,* (May 1995), No. 73-74, p. 17. Stephen Bell, "The environment - a fly in the ointment, *Chain Reaction,* (May 1995), No. 73-74, p. 32.

None of this bodes well for the NEPC. If it is to succeed, the council will have to battle both uncooperative industry and recalcitrant States. In this battle, knowledge is going to be a key weapon because it can inform relevant institutions about the seriousness of the problem, provide an economic justification for environmental regulation and generate possible solutions (such as cleaner production). This is why initiatives like pollution inventories and studies about the economic impacts of regulations are so important.

Although it provides a forum for coordination, learning and dispute resolution between different levels of government, the NEPC lacks the ability to enforce decisions taken. I would suggest two institutional changes to strengthen its position. The first would be to give the council the ability to redirect the flow of funding for environmental intervention at of all levels of government. All money now available to Commonwealth, State and Local government environmental institutions could be paid into a common fund administered by the NEPC. Each institution would then apply to the council for funding. Those that dragged their feet in implementing NEPMs could then be placed under pressure by the threat to cut funds. This change alone may not be sufficient, given the US experience with SIPs, but it would strengthen the position of the council.

The second change would be to establish a joint environmental arbitration commission that could legally order the enforcement of NEPMs and impose fines. This would provide a forum for interested parties to review the way an NEPM was being implemented, and would put pressure on recalcitrant authorities. The rules of legal standing could be relaxed so that environmentalists, industry, labour, and community groups could make applications for hearings. The US experience suggests that a more open legal system is a double edged sword for effective environmental regulation. The courts can be used either to delay intervention or to force a State institution to act. There does not appear to be an easy solution to this problem, but making the hearing system less formal, setting time limits for cases, and clearly defining the jurisdiction of the commission could help.

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of sustainable production and use their hands on experience to innovate from the factory floor.

The US has gone part way down this road with the PETE program. In Australia, the success of employee occupational health and safety representatives suggests that such a system would work, because it allows employees with practical experience to identify specific points for improvement. It would be important to give ESD representatives similar legislative backing to that of the current safety representatives and maintain an incentive of personal executive liability. The two systems might even be combined into a framework of safety/ESD representatives. Business could ultimately benefit from this arrangement because promoting sustainability through cleaner production would reduce some production costs (see table 8.1 over page).

These cost savings for industry would include less raw material being lost on non-profitable by-products, lower waste disposal costs, and fewer hazardous accidents or clean-ups. Having a participatory environment/safety committee structure could also increase efficiency by using the hands-on knowledge of employees to make improvements and improve industrial relations by giving employees the opportunity to influence decision-making. It would be important for the state to promote potential economic benefits among business leaders so that they perceive a real interest in making the necessary changes. The Commonwealth has gone part way down this road with the cleaner production database (Table 8.1 includes data from Australia, the USA and Europe).[26]

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[26] Australian case studies from the National Cleaner Production Database Provided by the Cleaner Industries Section of the Commonwealth Environment Protection Agency, [http://www.erin.gov.au/portfolio/epa/environet/ncpd/auscase_studies.html]. Other case studies from: Michael E. Porter and Claas van der Linde, "Green and Competitive: Ending the Stalemate," *Harvard Business Review*, (September-October 1995), pp. 120-134.

Table 8.1: Examples of the Economic Benefits of Cleaner Production

Firm	Project	Costs ($)	Benefits ($)	Pay Back
Robert Bosch Australia, Clayton Plant for electronic components, Australia.	Environmental committee established in 1993 and an environmental audit by the Australian Conservation Foundation in 1994 led to: the installation of an automatic rotating drum to disperse soldering flux more efficiently; phasing out of some solvents and chemicals; new light and climate controllers; and a cardboard recycling program.	Capital investment: $25,000	Ongoing savings: $35,000 pa plus major reductions in waste.	9 months, 140%
Henderson Automotive Group, Melrose Park vehicle component plant, Australia.	Environment Committee and Best Practice program created in 1992 led to: new water re-treatment plant; extensive recycling; switch from oil to water based lubricants; and a new error detection system.	Capital investment: $309,000	Ongoing savings: $270,000 pa plus major waste reductions and improved employee relations.	14 months, 87%
Dow Chemical, California.	Redesign of production process to comply with new effluent laws in 1987 led to a significant reduction and reuse of waste hydrochloric acid and caustic soda.	Capital investment: US $250,000	Ongoing savings: US $ 2.4 million pa plus 6,080 tons less waste pa.	1.25 months, 960%
3M adhesive plant, USA.	Introduction of rapid quality tests to detect problems with new batches early and avoid need for defective batch dumping.	Almost no cost.	Ongoing savings: US $200,000 pa plus 110 tons less waste pa.	
Rhone-Poulenc nylon plant, Champagne France.	Diacids, a by-product that used to be incinerated, are now recovered and sold as additives and coagulation agents.	Capital investment: 76 million francs.	Ongoing revenues from sale: 20 million francs.	3.8 years, 26%

Cleaner production is not a total solution to the environmental side effects of industry. While 3M has been able to reduce its pollution per tonne of product substantially, for example, its rapid growth has offset these gains so that the total amount of pollution has actually increased over the last ten years.[27] There will also be many cases where there is no coincidence of environmental and business interests, where there are no simple or inexpensive means to reduce waste, or where the nature of the production process inevitably creates some unwanted by-

[27] Tom Athanasiou, "The Age of Greenwashing," *Capitalism, Nature, Socialism*, (March 1996), Vol. 7, No. 1, p. 7.

products.[28] Some of these cases may provide an opportunity to apply the principles of industrial ecology, where firms establish several different plants on one site that can use each others waste as inputs. Such an arrangement allows each firm to reduce costs by sharing infrastructure and deriving extra revenue from the sale of wastes.[29] The environment benefits because what was previously released as pollution is now recycled between plants. In the end, however, industry will still have to be weaned off non-renewable resources and will have to stop using or producing toxic substances.[30]

Neither cleaner production technology nor industrial ecology are complete solutions to all the problems associated with industry. They could significantly reduce the rate of environmental destruction and may at least buy more time before problems become critical. Overall, setting up ESD/safety committees within both the state and industry may overcome the problem of trying to introduced a planned outcome (ESD) into the market, because the goal is injected at a multiplicity of points and allowed to adapt, rather than being static and centrally imposed. These changes may help to significantly alter the discourses and force relations that shape industry's use of the environment. The whole system would still need an organisation like a new EPA within DEST or the NEPC to coordinate and guide the process.

Summary

This analysis can be summarised quite simply. If you want to ameliorate environmental problems you will need to make industry sustainable and you will need the help of state institutions. To be effective, these institutions will have to be restructured so that they can strategically manipulate pertinent information, discourses and the perception of interests, and in so doing alter the flow of resources through society. Both the state and industry will need to adopt a more participatory decision making structures. This requires five interlocking changes:

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[28] Cebon, p. 20.
[29] Ernest Lowe, "Industrial Ecology: A Context for Design and Decision," in Joseph Fiksel (ed) *Design for Environment: Creating Eco-Efficient Products and Processes,* (McGraw-Hill, New York, 1996), pp. 444.
[30] Joanna D Underwood, "Going Green For Profit", *EPA Journal,* (July-September 1993), Volume

- Enunciate and propagate the discourse of sustainable development through the web of proposed expert committees, steering groups and environmental/safety representatives within both industry and the state;

- Construct a clearly perceived enlightened self interest for key decision makers by publicising the positive economic benefits of cleaner production or industrial ecology;

- Democratise both bureaucratic and economic institutions through the ESD consultative committees so that the enlightened self interest and ESD discourse can feed back into power structures;

- Restructure the market to create incentives for the achievement of sustainability; and,

- Promote routines of institutional learning so that organisations can constantly adapt and improve.

2) Participation & Decision Making

If it is accepted that the state institutions can have an impact on industrial development (either positive or negative) and if it is accepted that sustainable industry is a desirable policy goal, does the state as a whole need to be more radically restructured to achieve this goal? Political theorists have offered three different answers to this question: minimise the state; expand the state; or restructure the state.[31]

19, Number 3, pp. 9-13.

[31] The minimal state is proposed by eco-anarchists such as: Murray Bookchin, *Toward an Ecological Society*, (Black Rose Books, Canada, 1980), pp. 99-110, 63 & 76. It is also an approach taken by some economic rationalists and libertarians: DiLorenzo, pp. 14-19. The problems of expanding the state to take over more economic functions have been covered by several writers, see: [31] John Dryzek, *Rational Ecology: Environment and Political Economy*, (Basil Blackwell, Oxford, 1987), pp. 85-89; Barbara Jancar-Webster, "Eastern Europe: Environmental Problems," in Robert Paehlke (ed.) *Conservation and Environmentalism: An Encyclopaedia*, (Garland, London, 1995), pp. 187-192; Doug McEachern, *A Class Against Itself*, (Cambridge University Press, Cambridge, 1980), p. 186. Proposals to reform the state have included: George Hoberg, *Pluralism by Design: Environmental Policy and the American Regulatory State*, (Praeger, New York, 1992), p. 216. Landy, pp. 7-15. McGarity, pp. 61-65; National Academy of Public Administration, *Setting Priorities, Getting Results: A New Direction for EPA*, (NAPA Report to Congress, Washington, D.C., April 1995), pp. 48-49 & 172. Joseph M. Petulla, *Environmental Protection in the United States: Industry, Agencies, Environmentalists*, (San Francisco Study Center, University of San Francisco, 1987), pp. 115-119.

The case against minimising the state's role in resolving environmental issues has been argued on many grounds.[32] First, given the unlikely demise of market based economies in the near future, there is an ongoing need for a set of state-like institutions to at least protect property rights, enforce contracts, and make sure people are held accountable for damage to property.[33] Second, environmental damage often occurs where major resource decisions are taken by unregulated private firms, particularly in developing countries.[34] Third, as the highly successful Australian Landcare program demonstrated, environmental programs can be community based and do not necessarily entail an unwieldy bureaucracy.[35] A fourth critique can be added in light of the case study material. Both the US and Australian experience has indicated a reluctance by industry to recognise and internalise the full costs of production.[36] Anti-environment discourses have actually prevented many businesses from recognising the economic benefits of cleaner production. All of this suggests that the role of state institutions should not be minimised.

I would also make an argument in favour of continued state intervention on the grounds of risk management and game theory. Consider first that either there are

[32] Robyn Eckersley, "Free Market Environmentalism: Friend or Foe?" *Environmental Politics*, (Spring 1993), Vol. 2, No. 1, pp. 1-19

[33] Peter Grabosky, "Governing at a Distance: Self-regulating Green Markets", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 215 & 220. John Dryzek, *Rational Ecology*, p. 83. Michael Jacobs, "Sustainability and 'the Market': A Typology of Environmental Economics", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 55. Susan Smith, "Changing Corporate Environmental behaviour: Criminal Prosecutions as a Tool of Environmental Policy", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 266. World Commission on Environment and Development [with additional material from The Commission for the Future], *Our Common Future*, Chair Gro Harlem Brundtland, (Australian Edition, Oxford University Press, Melbourne, 1990 [original: 1987]), p. 91.

[34] Robin Broad, "The Poor and the Environment: Friends or Foes?", *World Development*, (1994), vol. 22, no. 6, p. 812. Tim Doyle, "Sustainable development and Agenda 21: the secular bible of global free markets and pluralist democracy", *Third World Quarterly*, (1998), Vol. 19, No. 4, p. 779. Interview with David Hanrahan, policy analyst, World Bank Pollution and Environmental Economics Division, Environment Department, Washington DC, July 19, 1995.

[35] West Australian Government, *The Proposed National Environment Protection Council (NEPC): Analysis and Criticisms of the Concept by the Government of Western Australia*, (Federalism and the Environment Thought Starter Paper Number 1, Perth, May 1994), p. 5.

[36] Peter Christoff, "Market-based Instruments: The Australian Experience", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 165. Joseph Petulla, *Environmental Protection in the United States: Industry, Agencies, Environmentalists*, (San Francisco Study Center, University of San Francisco, 1987), p. 88. Peter Cebon, "Corporate

serious environmental problems associated with industrial production, or there are not. Second, either the state institutions intervene to regulate and promote cleaner production, or they do not. We can draw up a table of choices and consequences on the basis of these parameters (see Table 8.2 below).

Table 8.2: Intervention & Risk Management Strategy

	Serious environmental problems	No serious environmental problems
The state intervenes effectively	A) No cost	B) Industry is forced to invest in cleaner production but money may be recouped by efficiency savings. Some reduction in total economic welfare due to regulations that induce a dead weight loss.
The state does not intervene effectively	C) Industry fails to recognise any benefits from cleaner production and green products leading to major economic, social, political and environmental problems.	D) No Cost

Both outcomes A and D (table 8.2) have no cost of being mistaken since actions and perceptions match. Given the analysis so far, the costs suggested by outcome B would be minimal, since compliance with environmental regulations involve only about 2% of GDP. Further, many investments in cleaner technology actually reduce production costs and pay for themselves with efficiency gains. The maximum cost is therefore outcome C, where the state does not intervene and industry does not perceive a benefit in change, leading to a set of major problems like those listed in chapter 1 (eg. ozone depletion, toxic spills, deforestation, etc.). Based on this line of reasoning, if we want to minimise the maximum cost associated with industrial production, we would be inclined to accept the need for state intervention. This would be the case even if state institutions were less efficient than business and the market.

In this light the arguments for minimising the role of state institutions in promoting sustainable industry look very dubious because they neglect many

Obstacles to Pollution Prevention", *EPA Journal,* (July-September 1993), Volume 19, Number 3, p. 21.

market failures. They also fail to account for the tendency of industry to externalise costs and discount future benefits, as well as the fact that industry has neglected the economic advantages of cleaner production.[37]

The second option was to expand the state so that it runs most or all of industrial production. This basically assumes that if the majority of production was run by the state, environmental problems would be addressed because economic decision makers could take a longer term perspective in production planning. Historically, however, environmental degradation in the former East Germany under a centralised state-run economy was worse than in the former West Germany under capitalism.[38] Further, even in a mixed market economy there is simply no evidence that state run enterprises will be any better for the environment than private firms.[39] In any case it is highly unlikely that either the USA or Australia would be inclined to move towards a state run economy. Current trends are pushing the other way, with the state in both countries trying to reduce its size and involvement in production.

The rejection of the two previous approaches leaves only the last option: to substantially restructure state institutions. In both the US and Australia, many theorists have proposed two major modifications. First, there are various proposals for better state coordination (a point dealt with by the proposals in section one of this chapter). Second, there is a desire for more open and participatory decision making structures. The idea is that seeking new opinions and encouraging debate will promote more thorough examination of problems, more "rational" responses, and more legitimacy for state actions. This is the main thrust of Dryzek's proposals that are built upon Habermas' notion of ideal speech forums (see

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[37] John Dryzek, "Ecology and Discursive Democracy: Beyond Liberal Capitalism and the Administrative State", *Capitalism, Nature, Socialism*, (June 1992), 3(2), issue 10, p. 21. Michael Jacobs, "Sustainability and 'the Market': A Typology of Environmental Economics", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 61.

[38] John Dryzek, *Rational Ecology: Environment and Political Economy*, (Basil Blackwell, Oxford, 1987), pp. 85-89. Barbara Jancar-Webster, "Eastern Europe: Environmental Problems," in Robert Paehlke (ed.) *Conservation and Environmentalism: An Encyclopaedia*, (Garland, London, 1995), pp. 187-192.

[39] See Doug McEachern, *A Class Against Itself*, p. 186.

influence of a predominant discourse, the outcome of any deliberations will tend to favour those individuals or institutions whose position of power is supported by that discourse.[44] This is a limit to effective democracy.

The case study material suggests that three commonly held discourses have pervaded the environmental policy debate in Australia and the USA (see chapter 6). First is the assumption that private industry is the most appropriate way to organise the productive activity of these societies.[45] Second is the acceptance that both countries need a profitable private business sector. These are corollaries of the economic rationalist discourse that is prominent in both countries. The third discourse is the commonly held belief that environmental regulation adversely affect the economy.[46] This discourse emerged again and again in the case study material, despite a growing body of evidence that environmental intervention may actually help stimulate the economy.[47] If these three discourses were present in participatory ideal speech forums, the outcome would tend to be biased against regulation and in favour of business autonomy, even if there had been a strong case for a general interest in more state intervention to start with.

This appears to be exactly what happened with both the ESD working groups established by the Commonwealth government and the President's Council on Sustainable Development. Despite the enormous amount of effort put into them, the proposals that emerged were centred around: ensuring industry continued to have access to nature as a resource in the long term; providing support to business

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(Office of the Administrator, Washington DC, July 1994), p. 2.

[44] Mark Meister & Phyllis Japp, "Sustainable development and the global economy: Rhetorical implications for improving the quality of life." Communication Research, (1998), Vol. 25, No. 4, p. 417.

[45] President's Council on Sustainable Development, *National Town Meeting for a Sustainable America*, [http://www.whitehouse.gov/PCSD/ntm/index.htm], April 1, 1999, pp. 25-27. Department of Prime Minister and Cabinet, *Ecologically Sustainable Development: A Commonwealth Discussion Paper,* (Australian Government Publishing Service, Canberra, June 1990), pp. 35-36. Sharachchandra Lele, "Sustainable Development: A Critical Review", *World Development,* (1991) Vol. 19, No. 6, pp. 613-615. Paul Ekins, "'Limits to growth' and 'sustainable development': grappling with ecological realities", *Ecological Economics,* (1993), vol. 8, pp. 274, 276 & 280.

[46] Landy, pp. 206 & 224-25. DiLorenzo, p. 18.

[47] OECD, *Environment and Economics,* pp. 67-68 & 93. OECD "Environmental Policies and Employment", paragraphs 12-13. World Commission on Environment and Development, p. 255. National Commission for Employment Policy, pp. 21-23. Grabosky, pp. 204-15.

to develop better ways of producing things; and cautionary notes about the possible negative impacts of regulation and the need for regulatory reform (see chapter 6). A similar effect was noted at the Rio Earth Summit where business effectively manipulated both the discourse and the agenda.[48] Hence the outcomes of these forums tend to support the trans-structural assertion that the social web is warped to favour large business institutions.

One answer that Dryzek can offer for this dilemma is to propagate ecological rationality as the predominant discourse in combination with the creation of participatory decision making forums.[49] While this extra move might allow such forums to construct an interest in effective intervention, environment protection and sustainable industry, there remains a fundamental tension between discourse and democracy. The proposed expansion of open, participatory decision making is laudable from a democratic viewpoint, but it may not give a desirable result. Democratic processes can produce undemocratic decisions, such as handing over power to experts when problems appear too complex. Further, the process itself may not be truly democratic because future generations that will be affected by such decisions are not represented.

A trans-structural approach might resolve this tension by redefining democracy as a both an ideal and a mechanism of decision making that demand respect for personal autonomy. Any process, decision, or discourse can be measured against this definition. To be democratic, a decision must respect the autonomy of present and future individuals, and it must come from a process that also respects autonomy. By this standard, if Dryzek's forums work under the influence of a truly sustainable development discourse, the outcome should be democratic because both the process and the ideal respect the autonomy of present and future generations.

Trans-structural democracy therefore requires societies to maintain the capacity to challenge any decision making mechanisms, discourses and knowledge, that do

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[48] Pratap Chatterjee & Matthias Finger, *The Earth Brokers: Power, Politics and World Development*, (Routledge, London, 1994), pp. 40 & 61.

not respect personal autonomy or ignore future generations. Perhaps independent commentators, social movements, academia, and parts of the state, can generate the necessary alternative discourses and knowledge. Perhaps they can help to recast problems associated with industrial development in ways that encourage citizens to think outside commonly accepted discourses. This is what the sustainable development debate had the potential to become before it was coopted by business.

The problem is getting such discourses and knowledge into the social web and its power structures so that they are widely understood and accepted. Six years after the release of the Brundtland report and three years after the ESD working groups, 75% of Australians surveyed had not seen, heard, or read anything about ESD.[50] Thirteen years after the creation of the EPA, only 9% of US firms surveyed had an enlightened approach to environmental management.[51] After twelve years of OECD studies showing that some environmental regulations may increase employment and GDP, the discourse that state intervention is bad for the economy persists.[52] Given this information, it looks like attempts to democratise power structures and promote sustainable development in Australia and the US will be a long, hard struggle.

The final test for the fallibility of Dryzek's concepts is whether there is evidence that directly contradicts his assertions about how effective ideal speech forums would be. The example provided by both the ESD working groups and the President's Council on Sustainable Development suggests that state run consultative forums tend to favour particular business interests over general environmental interests. However, they are an improvement on the closed policy

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[49] Dryzek, "Ecology and Discursive Democracy", p. 41. Dryzek, *Rational Ecology*, p. 85.
[50] Department of Environment, Sport and Territories, *Community Attitudes to Environmental Issues*, (DEST, Canberra, 1993), p. 18.
[51] Petulla, p. 85.
[52] OECD, *Environment and Economics*, pp. 67-68 & 93; see also OECD "Environmental Policies and Employment", paragraphs 12-13; and World Commission on Environment and Development, p. 255.

making forums that preceded them, such as Nixon's deal driven restructuring of the state, which led to an administratively ham-strung EPA.[53]

The sorts of reforms proposed by Dryzek are generally supported by the case study material and trans-structuralism, if discourse is taken into account. The influence of discourse on perceptions of interest and knowledge will have an impact on even the most democratic decision making process. However, the opening up of institutions to better informed and more participatory decision making, the promotion of sustainable development discourses, and a diversified knowledge base, do seem to be the most practicable reforms for Australia and the USA. These changes are also in accord with the liberal-democratic discourses on which both states are founded. Such reforms will of course be resisted by institutions and individuals who perceive them as a threat to their power, but they do appear to be more plausible than either the proposals to minimise or expand the state.

3) Effective Intervention & Sustainable Industry

Section 1 argued for a restructuring of state and business institutions to inject an active discourse of sustainable development into decision making at all levels. Section 2 then considered a broader restructuring of decision making. This section considers the specific programs that appear to offer the most promising strategy for promoting sustainable industry in the US and Australian contexts.

Several points need to be taken into account in considering this topic. First of all, it should be noted that in both countries, business has the advantage of being the main influence on the flow of capital, revenue, labour, knowledge, and natural resources through the web. The state therefore has to rely on its ability to generate alternative knowledge and its ability to regulate the use of resources by industry.

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[53] Dennis C. Williams, *The Guardian: EPA's Formative Years, 1970-1973*, (US EPA, Washington DC, September, 1993), pp. 4, 5, 7 &12. Lazarus, p. 316. Robert Percival, "Checks Without Balance: Executive Office Oversight of the Environmental Protection Agency," *Law and Contemporary Problems*, (Autumn 1991), Vol. 54, No. 4, [Special Edition, "Assessing the Environmental Protection Agency After Twenty Years: Law, Politics, and Economics," symposium held at Duke University Law School, November 15-16, 1990], p. 128, footnote 4.

The evidence from the US EPA was that such powers do have an impact, although they have been small in relation to the total economy (see chapter 5). The second point is that although the world market imposes new external constraints, such as the threat of capital flight, the ability of national institutions to influence the exact shape of development in each country has not been completely erased (see chapter 2).[54]

Given the internal and external constraints on state institutions, their role in developing a sustainable industrial sector will generally include building on successful programs, doing as much as possible to bias the market in favour of cleaner production, and promoting the inclusion of environmental issues in international institutions. This means a continuance and refinement of regulations covering the extraction and disposal of natural resources. At the extreme, some products or processes will have to be banned, such as CFCs, but generally the use of standards, taxes, charges and permits will remain the mainstay of environmental regulation.[55]

In terms of capital and revenue, the state could do more to create financial incentives to invest in cleaner technology. Everything from tax breaks for the appropriate research, development and deployment of cleaner technology, to extra charges for polluters would help.[56] A strong labelling and consumer information campaign would help to empower green consumers and redirect the flow of sales revenue towards more responsible firms.[57] Such tools are imperfect and will not lead to instant changes, but they should help. Despite claims to the contrary, there is mounting evidence that the costs of environmental regulation have been at such a low level that they do not push companies offshore or shut down otherwise

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[54] John Zysman, *National Roots of a "Global" Economy*, (University of California at Berkeley, August 1994), pp. 8-11. John Zysman, "How Institutions Create Historically Rooted Trajectories of Growth", *Industrial and Corporate Change*, (1994), vol 3, no. 1, pp. 244-5. Suzanne Berger, *Peasants Against Politics*, (Harvard University Press, Massachusetts, 1972), pp. 146-152.
[55] Robert Hahn, "Economic Prescriptions for Environmental Problems: Lessons from the United States and Continental Europe", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 131. Alan Moran, "Tools of Environmental Policy: Market Instruments versus Command-and-control", in Robyn Eckersley (ed.), *Markets, The State and the Environment*, (Macmillan, Melbourne, 1995), p. 83.
[56] WCED, p. 266.
[57] Grabosky, p. 203.

transition to cleaner, more democratically run industries. Unions could negotiate the retraining and re-deployment of workers from the declining, polluting industries, into the growing, sustainable sectors. They could also back up the ESD/safety committee system with their expertise. If labour perceives an economic and social interest in sustainable development, by ridding itself of the perception that environmental regulation costs jobs, it may become another force pulling recalcitrant firms towards sustainability.

Trans-structuralism suggests that the role of the state in Australia and the USA is not as straight forward as might be expected. It is constrained both internally by the structural advantage of business, and externally by the demands of the world market. The US case studies, however, suggest that state institutions can still have an impact on the shape of industrial development. To be effective, the state will have to coordinate its intervention and be willing to initiate a major restructuring of itself and the economy. It may also help to get labour on side in this process. The fundamental strategy will be to use sustainable development as a discourse to inform and align improved state and business institutions.

Conclusion

The proposals in this chapter are designed to renew state environment protection institutions so that they can more effectively push industry towards sustainability. Creating a network of ESD advisory groups within all levels of the state and extending them to business is one way to effectively deploy sustainable development discourses. Such a system would need the support and coordination of a revitalised national EPA-like institution. The proposal to make state and business decision making structures more participatory is necessary but not sufficient, because there also needs to be a replacement of anti-environmental discourses with sustainable development alternatives. The idea is to alter both power structures and perceptions so that they make a coordinated effort directed towards achieving sustainability. Given the experience of the USA and Australia,

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[62] John Wise, "Partnership for Environmental Technology Education", (Paper presented to the Second Semi-Annual Resource Instructor Conference, Las Vegas, February 21, 1992, [http://www.epa.gov/docs], pp. 4-5.

a range of carefully designed interventions will have to be deployed to provide an consistent incentive to improve. Even so, it is unlikely that industry will become sustainable in the sense required by Jacobs' ideal model.

Conclusion

If it is accepted that environmental issues are serious, the findings of this research project beg three further questions. Can industrial societies like the USA and Australia survive in the long run? What structural changes would have to be made to ensure this survival? What role should the state play in the transition? Given the ubiquity of industrial production and the predominance of the USA in the international political economy, these issues hold some fundamental implications for the survival of the world. This thesis has gone some way towards addressing these issues. The proposed trans-structural theory was able to generate a method for assessing the effectiveness of state institutions using the redirection of resource flows as a gauge. Taken together, the theory and method have exposed the constraints on democratic decision-making and the limits to power of the state.

This thesis began with a deceptively simple research question: how effective can a national government environment protection institution be in making industry sustainable? Sustainable industry was defined as productive activity which interacts with the environment in such a way that: the dependence on non-renewable is reduced at a rate that maintains the ratio of demand to supply; renewable resources are used at or below the rate of their replenishment; the type and level of waste produced can be easily assimilated by the immediate environment; the degree of biodiversity and amenity is not reduced; and the environmental services of "climate regulation" and "geochemical cycling" are not threatened.[1]

Chapter one argued that the serious and ubiquitous nature of environmental problems makes this question worth asking. It also concluded that a comparative case study of the USA and Australia was the most manageable way of exploring the subject. The availability and type of data made discourse analysis, triangulation and comparative techniques the most useful approach. The idea was

to explore the power relations between industry and state environmental institutions that were implicit within the documents produced by all the relevant political actors.

Chapter two derived the most appropriate theoretical framework and research strategy given the nature of the topic. After surveying several different schools of thought which used state institutions as their main focus, the approaches adopted by constructivism, Foucault and some critical theorists was found to be most promising. A new "trans-structural" framework was then derived that defined institutional power as the ability to redirect the flow of resources (natural, capital, revenue, labour, and knowledge) through the web of society's force-relations/discourses so as to advance or defend perceived ideals or interests. This offered a strategy for identifying and quantifying such resource redirections in the case study data. There were also some implications for the limits of proposals to democratically reform state and industry institutions.

Chapter three initiated the case study of the US EPA by analysing its origins, goals, structure, theoretical powers, and programs. All these features had been complicated by a clash of discourses and institutions within the state and the prevailing political climate. It was concluded that the agency had been deliberately constrained by the limited institutional space provided from its inception. This constraint was the product of the combined effect of competing state institutions and discourses that were pro-business, anti-environment, anti-regulation, and anti-centralisation.

Chapter four went on to consider the effect of the US EPA in practice. After reviewing a cross-section of case studies it was found that the agency had managed to improve some elements of environmental quality in some locations. Its ability to do more was held back by four factors: the scale and complexity of environmental problems; the inconsistent nature of environmental laws; the ability

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[1] Michael Jacobs, *The Green Economy: Environment, Sustainable Development, and the Politics of the Future*, (Pluto Press, London, 1991), pp. 86-93. A more extended discussion of sustainable industry is in the glossary section at the end of the introduction and in chapter 6.

of recalcitrant industry to block EPA actions; and the deliberate institutional constraints placed on the agency by successive administrations.

In the fifth chapter, different methods of assessing the US EPA's performance were evaluated and compared. It was found that the EPA did not meet the goals set for it because they underestimated the scale of environmental problems. It was also found that the reduction of key pollutants in some areas tended to overstate the effectiveness of the agency because other factors were sometimes at work. The case study approach found that the EPA was significantly hamstrung by the opposition of industry and could have been more effective had business been more cooperative. A final method of analysis, derived from the trans-structural theoretical framework, revealed that the agency was inducing significant shifts in resources within industry. The overall effect, however, was still quite small relative to the total US economy.

Chapter six outlined a shift in US and Australian governmentality away from regulation and towards consensus based national sustainable development policy goals. While the whole consultative policy making process initially appeared to offer a way out of the "jobs versus environment" dilemma, business has effectively been able to coopt sustainable development discourse to protect its privileged position more than the environment. The development of the more specific goal for sustainable industry also suffered from this cooptation.

Chapter seven looked at the way Australia had sought to re-invent national environment protection institutions in the light of national sustainable development policies. It was found that the unique social, political and economic institutional context of Australia has weakened the state's ability to intervene effectively in environmental issues. Further, although the rhetoric of sustainable development is now firmly entrenched, there appears to be little coordination between the policy goal and state institutional design.

Chapter eight drew together the lessons from the US and Australian case studies and put forward some concrete proposals to make national environment protection

institutions in Australia more effective for making industry sustainable. First was the proposal to recreate an new EPA within the Commonwealth that could coordinate a network of Ecologically Sustainable Development steering groups across all state and business institutions. Second were proposals to strengthen the NEPC by giving it the power to direct funding and back its decisions through a new judicial commission. A proposal to open up decision making structures to more democratic input was then considered. Finally, programs relating to initiatives like cleaner production were noted as the most promising because of the convergence of economic, social and environmental interests. Overall it was suggested that the achievement of even a modest policy version of sustainable industry required not only major state and business restructuring, but also a massive change in the predominant discourse among decision makers so that they would accept the importance of environmental problems.

This thesis has fulfilled the criteria for success outlined in the introduction. First, it has identified, described and analysed the purpose, structure, resources and powers of the major national government environment protection institutions in both countries. Second, it has been able to assess how effective these institutions have been using a new trans-structural method. Third, it has analysed how the policy goal of sustainable industry has been deployed in Australia and the USA. Fourth, it has specified a new role for environment protection institutions in achieving the sustainable industry goal. Finally, it has generated some broader implications for the relationship between business and government and the likelihood of achieving sustainability.

This study has also generated several pieces of original knowledge. First, it produced new data and an original analysis of CEPA and the NEPC that pointed out their structural weaknesses. Second, it has constructed a unique comparative analysis of the US EPA and CEPA/NEPC that highlighted both the complexity of environmental problems and revealed why the Australian response has been so inadequate. Third, it undertook an original discourse analysis of documents relating to all three institutions that exposed the dominant position of business. Fourth, it provided a new discourse analysis of Australian and US sustainable

development policies that demonstrated how the policy has been effectively subverted by industry. Fifth, it developed an original comparative analysis of US and Australian sustainable development policies that uncovered how discourses had been at work in the consultation processes. Sixth, it created an original "trans-structural" method for assessing the effectiveness of government institutions that was better able to evaluate the successes and failures of the US EPA. Seventh, it proposed a new strategy for the effective implementation of sustainable development policies using national environment protection institutions to coordinate groups within industry and the state. Finally, it offered some new insights into the nature and limitations of state institutional power.

Overall, national environment protection institutions are a necessary but not a sufficient condition for making industry sustainable. Even in their original form these institutions have clearly had some positive effect on the quality of the environment and the behaviour of industry, but the amount of resource redirection they have induced is small compared to the totality of economic activity in the USA and Australia. The scale of environmental problems, powerful business resistance, the predominance of antagonistic discourses, and inter-agency rivalry have all worked against effective intervention. A radically restructured set of state and business institutions would help, particularly if a new pro-environmental discourse prevailed, but the official policy goal of sustainable industry would have to be dramatically redefined. In short, national environment protection institutions can help reduce the rate of ecological damage, but they can't effectively make industry sustainable because they are caught in a powerful web of resistant discourses and force relations.

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