

CHAPTER 6

LEGISLATION, COMPROMISE AND NEGOTIATION

Engineers are subject to certain constraints in their choice of treatment technologies. In the last chapter it was shown that effluent standards play a key role in defining what is good enough or sufficient treatment. Such standards can either be set down in law or regulated by some government authority or agency. In this chapter several aspects of this process will be considered; in particular the introduction of comprehensive legislation in the 1970s which followed a period of rapid and obvious degradation of Sydney's waterways that was highlighted in the media and in official reports. The new legislation set the conditions within which engineering decisions would be made. The extent to which environmental legislation sought compromise with industrial and bureaucratic interests ensured that the legislation also accommodated the engineering paradigm and ensured that engineers continued to shape and control sewerage treatment technologies.

TRADITIONAL APPROACHES TO REGULATING POLLUTION

The traditional method of dealing with pollution has been through common law. Common law is law that develops over time through precedents set in the court by judges who interpret and recognise various principles and rules in dealing with particular cases. Common law tends to protect individual and property rights and is not always appropriate for dealing with pollution.

Under common laws of nuisance a private person, usually an occupier of land, can sue for damages or be granted an injunction if the beneficial use of their land is interfered with because of the nuisance caused by their neighbour or a business in their vicinity.¹ In this case the person has to show that they have suffered "special" damage over and above what everyone else has suffered, the interference must be substantial and unreasonable and the nuisance must arise from a land use that is excessive in the context of existing uses of the area.² Moreover a person must show firstly that they have legal standing to take proceedings, secondly that the pollution was caused by the accused and thirdly that significant physical injury or economic loss has been sustained as a result of that pollution.³

The common law of 'public' nuisance can be used for personal injury suffered in public. But again the person must show that they have suffered more injury than the rest of the public. If the public is generally effected then a person can seek the assistance of the Attorney-General, as Guardian of the public interest, to put his/her name to the action and allow it to proceed. This, however, means that the action may not go ahead if it is not in the interests of the government of the day, particularly if it is the government itself which is discharging the pollution.⁴

¹ David John Haigh, 'Pollution in New South Wales-Air, Water, Noise and Waste' in Local Government, Planning and Environmental Service, Volume C-Commentary, Butterworths, 1981, p15016.

² G.M.Bates, Environmental Law In Australia, Butterworths, 1983, p149.

³ Pamela Coward, Environmental Law in Sydney, Botany Bay Project, Canberra, 1976, p50.

⁴ Haigh, 'Pollution in NSW', p15016; G.M.Bates, Environmental Law in Australia, p159

Finally, an individual may take the polluter to court for negligence under common law but this too has its problems. The person has to prove that the polluter acted negligently and was able to foresee the consequences of those actions and that damage or injury resulted.⁵

All these laws offer remedies once the damage is done. They can involve legal battles that can be expensive and time consuming for private citizens who may be battling against industrial opponents who are better funded and resourced. Pollution is never easy to prove. The law of nuisance, in particular, attempts to balance competing interests in land usage and development and therefore individual cases are settled on a basis of reasonableness and findings tend to support the right of businesses to exist as long as damage to others is not too excessive.⁶ For all these reasons, common law is an ineffective way of controlling pollution.

The other type of legislation that has been used for pollution control is through statute law. Early legislation of this type was aimed at protecting water supplies and prescribed penalties for nominated acts; the "don't-throw-dead-dogs-in-the-dam" approach. The effectiveness of statute law was also limited, partly because it depended on a "policeman hiding in the bushes" approach to enforcement.⁷

Statute laws tended to be included in more general legislation in areas such as public health, local government, mining, water supply and water resources and were secondary considerations to the main thrust of the legislation.⁸ This meant a large number of government bodies had some power to prevent or control pollution but none of them saw this as being a top priority.⁹ For example, in 1936 the Maritime Services Board was established and given responsibility for all navigable waters in NSW. The definition of 'navigable' was wide enough to include any waterway in which any craft could float and therefore covered inland rivers, streams and canals. It was therefore the Maritime Services Board which was primarily responsible for water pollution throughout NSW.¹⁰

The main function of the Maritime Services Board, however, was, as its name suggests, to look after shipping interests and it therefore was only really concerned with the pollution of port and harbour waters, flotsam and jetsam, which would impede shipping traffic. To cope with other water pollution the Board established the Pollution of Navigable Waters Regulations in 1941. These regulations prohibited the dumping of animals into any navigable waterways and the dumping of industrial wastes, by owners or occupants of industrial establishments, into navigable waterways near a city, town or municipality.¹¹

⁵ Pamela Coward, Environmental Law in Sydney, pp50-51.

⁶ Bates, Environmental Law In Australia, p148; Butlin, Sydney's Environmental Amenity, p

⁷ Sandford D. Clark, 'The Philosophy of Australian Water Legislation - Part III', Water 8(1), March 1981, p14.

⁸ ibid.; Bates, Environmental Law In Australia, p150.

⁹ ibid.

¹⁰ N.G. Butlin, Sydney's Environmental Amenity, Botany Bay Project, Canberra, 1976, p21.

¹¹ ibid., p22.

New regulations were introduced in 1955 (Navigable Waters (Anti-Pollution) Regulations) which "were a recognition of the era of chemicals".¹² These regulations prohibited the dumping of any inflammable, dangerous or toxic substance into waterways or their shores and they set maximum effluent standards for biochemical oxygen demand, acidity, alkalinity, sulphur, ammonia and heavy metal concentrations. The Board had total flexibility in the enforcement of these regulations and could vary the standards according to the state of the waterway, or the inconvenience the standards might cause an industry. This was provided that the Board considered the effect on the waters, the 'comfort, convenience or health' of water users and aquatic life.¹³

The philosophy behind the 1955 regulations shows the change in attitude towards pollution of waterways. Until then the orientation of pollution control efforts had been towards protection of human health and keeping the waterways free from obstruction. The authorities were especially concerned about the disposal of human excrement and animal products which were likely to be a source of infectious diseases. The new philosophy was oriented towards protecting the waterways so that they remained suitable for a number of uses.¹⁴

A second aspect of the changed philosophy towards pollution control was "an acceptance of the principle of management of the medium into which wastes were discharged".¹⁵ Previously emphasis had been placed on the wastes and waste sources, now the emphasis was on controlling the quality of the waterways.

DETERIORATING ENVIRONMENTAL QUALITY AND IMPROVING AWARENESS

During the 1960's the public became increasingly pollution-conscious. Not only were they directly experiencing the results of pollution in the local rivers and on the beaches and reading or hearing about more distant pollution in the media but overseas concern was growing as industrialised countries faced more intolerable environmental conditions and attempts were made to legislate and control the excesses of uncontrolled growth. Moreover the new science of ecology was having its impact, environmental and conservationist groups were becoming active with the growth of the counter-culture and several key books were published at this time including Rachel Carson's "Silent Spring" (1962).¹⁶

It was also becoming apparent that existing mechanisms for control of pollution were inadequate. Common law was ineffective but so was ad hoc statute law. Local government bodies lacked the financial resources, the will and the geographical jurisdiction to cope with problems occurring in their areas.¹⁷ The Health Department was only able to act after the event, in the wake of offences

¹² *ibid.*

¹³ *ibid.*

¹⁴ D.D. Moore & J.J. Wright, 'Water and Wastewater Monitoring in the Sydney Estuaries', in Industrial Waste Water - A symposium on Recent Developments, UNSW, 1972, p1.

¹⁵ Butlin, Sydney's Environmental Amenity, p23.

¹⁶ *ibid.*, p23.

¹⁷ *ibid.*, p27.

committed, and then they were generally unsuccessful in catching and prosecuting the culprits.¹⁸

The growing public consciousness of pollution in NSW began to make itself felt at a government level from the early 1960s when the then Minister for Health, Mr Sheahan, set up a standing committee in 1961 to inquire into the causes of water pollution and ways of preventing and reducing it. The committee, comprising of representatives of the various public bodies with some responsibility for water pollution, was to compile and publish requirements for industrial waste treatment.¹⁹

In September 1962, the Government Analyst, Mr Ogg, caused a stir when he reported on the condition of the George's River (location shown on figure 6.1) which he said was a menace to public health. Ogg had made his investigations on instruction from the Minister for Health after river swimming pools had been closed because of pollution. Ogg found that in parts of the river even eels, notorious for their tolerance of pollution, had been killed.²⁰

Five years before the river had been used for bathing, fishing, picnicing and boating but now swimming was unsafe and fish few and far between. Ogg blamed the effluent from the Fairfield sewage treatment plant particularly, but also garbage dumping and runoff from unsewered areas.²¹ A year later Ogg submitted a second report on the George's River, again pointing to the pollution and health dangers. Oyster farmers also complained that their leases were being ruined by pollution and boats in Botany Bay, which the River runs into, were being coated in slime and oil. Pollution was attributed to sewage treatment works, garbage dumping, topsoil runoff and factory wastes.²²

In 1966 it was reported that thousands of fish had been killed in the Parramatta River (location shown on figure 6.1). Industries sited on river banks were reported to be pouring their wastes directly into the waterways. In fact industries were establishing themselves next to watercourses because they offered the opportunity for no cost waste disposal. Several reports highlighted the alarming state of river and stream pollution. The Water Board chief medical officer, Dr. Flynn, described the condition of the Parramatta River at the time as "woeful". The Cooks River (location shown on figure 6.1), too, was used "just as a trade sewer"²³

A year later the Mirror, in a major article described the Parramatta and Cooks rivers as being covered with green slime, depleted of the once plentiful scallops and littered with hundreds of dead fish floating "belly-upwards after any sudden increase in industrial effluent."²⁴ The paper reported that a Maritime Services Board spokesman had emphasised the need for being realistic. He had argued that Maritime Services Board couldn't expect businesses to shut their factories

¹⁸ ibid., p29.

¹⁹ Sun, 13th December 1961.

²⁰ Mirror, 13th September 1962.

²¹ ibid.

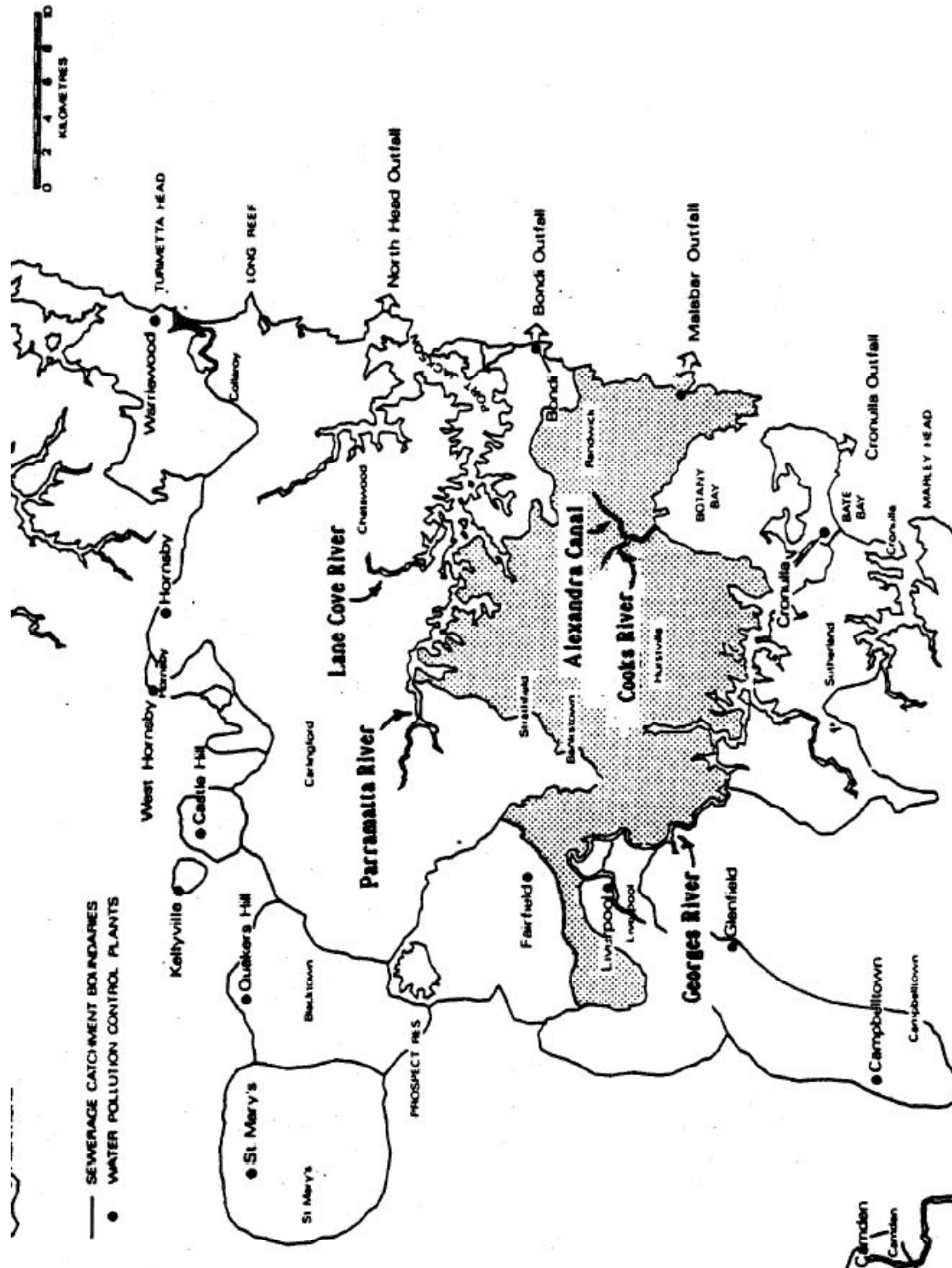
²² Mirror, 19th September, 1963.

²³ Telegraph, 23rd May 1966, 8th June 1966.

²⁴ Mirror, 19th July 1967.

and send their workers home just because they were putting some pollutants in the water.²⁵

Figure 6.1 Sydney Waterways



Source: Caldwell Connell, Environmental Impact Statement: Malabar Water Pollution Control Plant, MSW&DB, 1979, p2.

²⁵ ibid.

In mid 1969 the Sun published an article about the Alexandria Canal (location shown on figure 6.1) headlined "Filthy canal makes strong men sick". They described the canal as "nothing more than a stinking industrial sullage channel", "vile smelling", with thick black water "dotted with psychedelic patterns of pink dyes, scrap metal and other industrial wastes". The Canal was lined on one side by factories and the 1000 plus people who worked in the Government-owned woolshed on the other side of the canal had held four mass meetings and elected the "Alexandria Canal Anti-Pollution Committee" in an effort to get something done about it because they believed it was a health hazard. The Canal was controlled by the Maritime Services Board (responsible for navigation and pollution) the Water Board (responsible for stormwater drains running into the canal) and the Public Works Department (responsible for dredging the canal and removing debris).²⁶

The Herald described the Alexandria Canal in 1970 as "Sydney's blackest stretch of water". They quoted the Metropolitan Health Officer as saying it presented no health risk because even bacteria could not survive the degree of chemical contamination present in the Canal. The Canal had at one time been used for swimming, prawning and transport but boats became covered in a "black, oily, gluey substance" that could not be removed.²⁷ In a later article they described the effluent from a paperboard manufacturer which turned the water of the Alexandria Canal red, white or blue depending on the colour of the paperboard which was being milled. A sample taken by the Herald was way above limits set by the Maritime Services Board for suspended solids and biochemical oxygen demand.²⁸

The Herald also described the "warm, frothy, dirty discharge" from the Australian Paper Manufacturers' mill into Botany Bay. APM had set up on Botany Bay because of the availability of cheap bore water, a never-ending supply of cooling water and because they could easily get rid of their wastes into the Bay. Both an APM spokesman and the Maritime Services Board claimed that the effluent caused no harm. The Herald took two samples and found that both were many times more than the Maritime Services Board limits for suspended solids and biochemical oxygen demand so that there was a possibility that the life on the sea bed could be stifled by paper fibre and marine life could be deprived of oxygen.²⁹

The recognition by the newspapers and various public servants that water pollution was reaching crisis proportions in N.S.W. was reiterated by a Senate Select Committee on Water Pollution in Australia which tabled its report in June 1970 following two years of investigations and hearings, and over 5000 pages of evidence. The Committee found the conditions in N.S.W. were repeated throughout Australia and that pollution of waterways was so bad in some places they could no longer be used except as sewers.³⁰ Despite this, they argued that public awareness of the problem was very limited outside of conservation groups

²⁶ Sun, 27th June 1969.

²⁷ Sydney Morning Herald, 16th April 1970.

²⁸ Sydney Morning Herald, 22nd April 1970.

²⁹ Sydney Morning Herald, 21st April 1970.

³⁰ Senate Select Committee on Water Pollution, Water Pollution in Australia, Canberra, 1970, p183.

and voluntary organisations and expertise in the field of water pollution was lacking in Australia. Education of the general public and in technical fields was inadequate. Information and research was scarce.³¹

The Select Committee was particularly concerned that Australia's scarce water resources were not being protected at a time when water was becoming more valuable as population and industry grew. Water was being "squandered, by neglect or deliberate action, or by lack of administrative co-ordination," because water was considered to be free.³² The reliance on "private conscience, rather than upon public action, to preserve our waters" had failed.³³

The three main causes of pollution, cited by the Committee, were sewage, industrial effluents and salinity. The Committee argued that pollution had been too often justified by false economics. "Easily measured private profits had been used "as a facile argument to justify intangible and immeasurable social losses."³⁴ They believed that since pollution was justified in economic terms so economic arguments would be the most successful in putting the pollution abatement case. Costs and benefits had to be balanced.

The situation in N.S.W. at this time was further exacerbated by a crisis in industrial waste disposal that occurred at the end of 1969 when the last of the suburban council tips, at St.Peters, was closed to industrial waste. These council tips had been progressively closed as they became overloaded with "obnoxious industrial overflow". The tips were closed partly on the advice of the Board of Health but also in response to complaints from local people. A request by the Minister for Local Government, that 40 councils spread the industrial load between them, had been turned down.³⁵

The closing of council tips to industrial waste prompted a situation which no single public authority was able to cope with. There was no body able to direct the industrial wastes to particular locations that would have a minimum impact on the environment and take charge of the crisis.³⁶ Before the last council dump closed its gates to industrial waste, three major and a few minor contractors collected about 300,000 gallons of industrial waste every week and disposed of it. Afterwards they were only collecting 100,000 gallons and it was assumed that the remaining 200,000 gallons per week of sludges and liquid wastes were being dumped illegally.³⁷

The crisis extended into 1970 and industrial waste was being illegally dumped in bushland, into waterways and into the sewers and stormwater drains.³⁸ A Health Department official gave examples of trade waste abuses including a sludge carter dumping acid sludge into the Lane Cove River (see figure 6.1), a

³¹ *ibid.*, p184.

³² *ibid.*, p183.

³³ *ibid.*, p91.

³⁴ *ibid.*, p184.

³⁵ A.E.Barton, *Investigations into the Problem of Waste Disposal in the Metropolitan Area of Sydney*, 1970, p10; *Sydney Morning Herald*, 17th April 1970.

³⁶ Butlin, *Sydney's Environmental Amenity*, p29.

³⁷ *Sydney Mornng Herald*, 17th July 1970.

³⁸ *Sydney Morning Herald*, 26th February 1970.

tanker driver splashing oil for several miles along Parramatta Road and two explosions and a death resulting from the cartage of incompatible liquids.³⁹ A Water Board member claimed that untreated industrial waste was polluting the harbour and beaches and causing "enormous damage and loss to the Board and ratepayers".⁴⁰

There were plans to fall back on that old reliable dump - the sea - but this was objected to by local residents.⁴¹ The Government responded that this waste would be small in volume compared to what already went out the outfall, and that much of this waste was already going into the sewers without treatment because of illegal dumping.⁴² The Herald was also critical of the government plan to discharge selected industrial wastes, "which are often the most objectionable and difficult component to dilute", at Malabar since illegal dumping had already caused serious pollution problems on the beaches. The paper criticised the inability of the government to prepare for the situation since it should have known that the council tips were going to close down.⁴³

In May 1970, twelve outer-Sydney councils agreed to consider accepting limited quantities and types of liquid industrial wastes at their garbage tips as an interim measure to help in the liquid waste disposal crisis. The local government association, however, believed that the ultimate responsibility lay with the industries that created the waste.⁴⁴

In the meantime South Sydney Council threatened to prosecute the Minister for Public Works, Mr Davis Hughes, if he did not have the Alexandra Canal cleaned up within three months.⁴⁵ A Water Board Member, Mr Wallace, described the laws for prosecuting companies illegally discharging wastes as making "a mockery" of the board. At a meeting of the Board a "large industrial concern" which they knew was causing pollution of the beaches was discussed. The company was causing hundreds of thousands of dollars worth of damage to the beaches and the board's reputation but could only be fined a maximum of \$100 if it was successfully prosecuted.⁴⁶

COMBINED CALLS FOR COMPREHENSIVE LEGISLATION

Almost everybody who reported on or commented on the pollution problems of the 1960s called for a more comprehensive set of controls that were more centrally administered. When Ogg, the government analyst reported in the early 1960s he claimed the reason that the Georges River was so foul was the number of authorities involved in preventing its pollution and he called for a single authority with overriding control of all waterways.⁴⁷ The Telegraph supported this idea in its editorial a few days later and called for a "kind of standing body

³⁹ Sydney Morning Herald, 18th June 1970.

⁴⁰ Sydney Morning Herald, 26th February 1970.

⁴¹ Telegraph, 10th April 1970; *Sun*, 10th April 1970.

⁴² Sydney Morning Herald, 14th April 1970; *Telegraph*, 14th April 1970.

⁴³ Sydney Morning Herald, 13th April 1970.

⁴⁴ Telegraph, 10th May 1970.

⁴⁵ Sydney Morning Herald, 30th July 1970.

⁴⁶ *ibid.*

⁴⁷ Telegraph, 14th September 1962.

with overriding powers and a continuing responsibility for policing the disposal of factory waste, sewage and garbage in river areas."⁴⁸The newspapers kept up their lobbying for such a body over the next few years.⁴⁹

In May 1970 Allan Barton, an English expert brought out by the State Government to advice on the disposal of waste and garbage, completed his report. Barton argued that the formation of a single authority which would be responsible for all waste disposal was absolutely essential and urgently required. This authority would be a specialist authority "whose sole interest would be centred upon waste disposal."⁵⁰ At the time local authorities, the State Board of Health and the Department of Public Health, the Maritime Services Board and the Water Board all had powers to do with waste disposal but none of these authorities had a sole or specialised interest in it.⁵¹ Pollution control, he said, had to be comprehensive, effective and actively enforced. Had there been a co-ordinating authority the existing "critical situation" would never have arisen.⁵²

The Senate Select committee was particularly scathing about the plethora of organisations and laws concerned with pollution in all states of Australia. They described "a remarkable lack of cohesion bordering on the chaotic."⁵³ The consequence was that responsibility was ill defined and diffused and completely uncoordinated.⁵⁴ In NSW 5 government departments, 5 state government instrumentalities and all local government authorities were concerned with pollution prevention and control.⁵⁵ In addition legislative control of water pollution in NSW was affected by at least 30 acts.⁵⁶ They argued that there was "nothing in the present piecemeal and parochial administration of water to prevent the insidious growth of pollution excesses."⁵⁷

Action on pollution usually only occurred in response to imminent danger from overt dumping and incidents which caused social outrage.⁵⁸ There seemed to be "a marked lack of enthusiasm in enforcing the powers to abate pollution" and anyway government instrumentalities were often exempted from the provisions of the law.⁵⁹

Only a united, comprehensive, national approach would suffice, claimed the committee. This was necessary to ensure co-ordination between the States and the Commonwealth, to make an overall assessment of the country's resources and the threat to them, to provide and coordinate technical resources and skills,

⁴⁸ Telegraph, 17th September 1962.

⁴⁹ for example Telegraph, 23rd May 1966; Sydney Morning Herald 8th June, 1966; Mirror, 19th July 1967.

⁵⁰ A.E.Barton, Investigations into the Problem of Waste Disposal in the Metropolitan Area of Sydney, 1970, p21.

⁵¹ ibid., p10.

⁵² ibid., p19.

⁵³ Senate Select Committee on Water Pollution, Water Pollution in Australia, p138.

⁵⁴ ibid., p185.

⁵⁵ ibid., p121.

⁵⁶ ibid., p122.

⁵⁷ ibid., p185.

⁵⁸ ibid., p91.

⁵⁹ ibid., p139.

to determine general standards and criteria for classifying waters for specific uses, to give financial aid, to ensure new legislation would be unified and coordinated, and to arbitrate when conflicts arose.⁶⁰

Other reasons given, by the committee for more centralised control included the variation in attitudes and policies between local government authorities, the fact that local authorities were more subject to local pressures and the influence of local industries that were important to employment or council's revenues.⁶¹ Also an overall pollution body would be more able to lobby for funds from the government for pollution control.⁶² Pollution could not be contained within national boundaries, nor political divisions and therefore demanded national and international measures.⁶³

The Select Committee therefore recommended that a National Water Commission be set up which would formulate policy, assess water resources and program conservation and development of those resources. This body would encourage, assist and co-ordinate legislation, finance, research and education. It would be assisted by "a multi-discipline administration involving specialists" in a number of fields and a voluntary advisory body which would utilise conservation groups and provide for public participation.⁶⁴ Each state should create its own central pollution authority to co-ordinate State activities. These authorities would systematically assess water quality and regularly monitor pollution in the waterways.⁶⁵

Several attempts had been made by various N.S.W. governments throughout the 1960s to deal with water pollution legislation. In 1966 the Askin government had announced that it was introducing legislation to control water pollution throughout the state and that a Water Pollution Advisory Committee would be established. The Advisory Council would make recommendations, advise public authorities and investigate conflicts of interests between different authorities and industries.⁶⁶ In 1969 the State Government again proposed legislation to "restrict and control" pollution ("prevent" no longer used).

Mr Jago, Liberal Minister for Health, told parliament that a Water Pollution Bill had been drawn up by an interdepartmental committee. He expressed the hope that the bill would help achieve "better utilization of our existing resources" and spoke of how fine rivers had been turned into "stinking drains by what we empty into them". Legislation from overseas had been considered when the bill was drafted, especially that of New Zealand, which had had similar legislation since 1953, and of the United States.⁶⁷

The Government allowed some time for comments and submissions to be made on the Bill and it was reintroduced at the end of October 1970 as the Clean

⁶⁰ *ibid.*, pp186-7.

⁶¹ *ibid.*, pp130-140.

⁶² *ibid.*, p140.

⁶³ *ibid.*, p8.

⁶⁴ *ibid.*, pp188-9.

⁶⁵ *ibid.*, p189.

⁶⁶ *Sydney Morning Herald*, 8th June 1966.

⁶⁷ Mr. Jago, Water Pollution Bill, Second Reading, Legislative Assembly, 12th April, 1969.

Waters Bill.⁶⁸ Few revisions had been made but the name had been changed to place more emphasis on the prevention of pollution because some critics had suggested that the Water Pollution Bill would become an Act authorizing the pollution of water because of the provisions which would license organisations to discharge waste into waterways.⁶⁹

The major public criticism of the bill had been that it was not comprehensive enough. The Telegraph criticised Jago's proposed Water Pollution bill as "patchwork legislation" and called for a "master plan" like that of President Nixon. There had been too many committees, conferences, promises to "get tough" and too little action.

Mr Jago's projected Bill may impose harsh penalties on polluters but it will not solve the real problem of how to render harmless enormous masses of industrial waste or dispose of it in a harmless manner.⁷⁰

In late July, 1970 a meeting of metropolitan council representatives also criticised the proposed Water Pollution Bill as being a "piecemeal approach". They called for a single authority to control land, sea and air pollution in NSW with sufficient powers to police regulations, and a "continuous program of environmental research and education". The councils also supported the idea of a National Environmental Control Council to co-ordinate State activities.⁷¹

The Premier immediately announced that the government would establish a State Pollution Control Authority and also a Sydney Metropolitan Regional Waste Disposal Authority. The announcement was welcomed by local government bodies.⁷² In October a Commonwealth Office of the Environment was announced and welcomed in the pages of the Sydney Morning Herald, which welcomed the possibilities for uniform pollution controls across the states, financial assistance to the states in their fight against pollution and even taxation relief incentives to industry.⁷³

By 1972 a new legislative approach to environmental management was in place in NSW with two new government organisations set up with responsibilities for liquid waste management. The new administrative arrangements are shown in overview in figure 6.2.

COMPROMISE - TIPPING THE BALANCE TOWARDS POLLUTERS

Although the new water pollution legislation was established to clean up the State's rivers and waterways the government was careful to ensure that the legislation would "cause minimum hardship to industries and services which need to use areas of water for waste disposal."⁷⁴ There was therefore no goal of

⁶⁸ Mr. Jago, Clean Waters Bill, Introduction, Legislative Assembly, 27th October 1970.

⁶⁹ Mr. Jago, Clean Waters Bill, Second Reading, Legislative Assembly, 4th November 1970.

⁷⁰ Telegraph, 5th March 1970.

⁷¹ Sydney Morning Herald, 28th July 1970.

⁷² Telegraph, 30th July 1970.

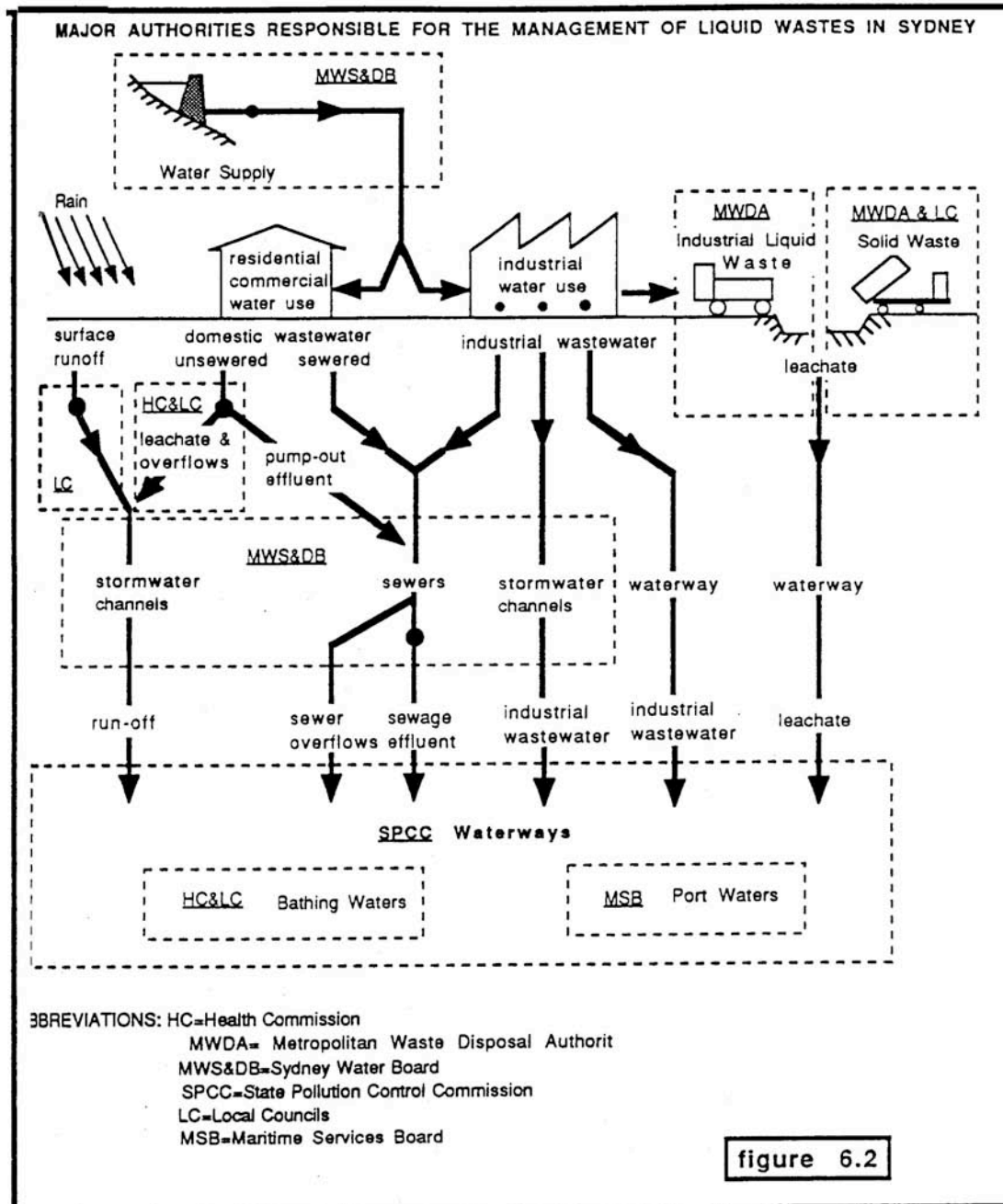
⁷³ Sydney Morning Herald, 24th October 1970.

⁷⁴ Sydney Morning Herald, 12th March 1969.

riding the waterways of pollution but rather the strategy was to keep pollution "to a level where it will cause the least possible harm".

where a degree of pollution is unavoidable because of the need to dispose of sewerage and industrial wastes, it is permitted in a controlled fashion designed to meet the needs of the community as a whole.⁷⁵

Figure 6.2 Major Authorities Responsible



Source: C.Joy et al, Liquid Waste Management, Botany Bay Project, Canberra, 1978, p44.

⁷⁵ Mr. Jago, Water Pollution Bill, Introduction, Legislative Assembly, 27th March 1969.

Each waterway was to be classified according to its use. For each classification there would be a standard of water quality set which would imply acceptable pollution levels for that waterway. Once a waterway was classified a polluter would require a licence to discharge waste into it. Section 16(6) of the Act stated

Notwithstanding the foregoing provisions of this section it shall not be an offence against this Act arising under these provisions for a person to pollute any waters if he holds a licence and does not pollute the waters in contravention of any of the conditions of the licence.⁷⁶

The licence would specify the nature, quality and quantity of waste that could be discharged.⁷⁷ Classification determined the degree to which a body of water could be polluted. The philosophy behind such a system is expressed well by the Victorian Environment Protection Authority in 1975 when it said

One has to strike a compromise in all of these matters. If industry is to exist, some degree of pollution must be permitted;... industry must be permitted to continue, and to continue to discharge waste, so long as the environment can absorb it without detriment to the quality of the environment and other characteristics.⁷⁸

Similarly, two officers of the Water Control Branch of the Health Department in NSW told a waste water symposium that although no waters would be classified for use as an open sewer, "the reasonable and necessary use of waters in the final distribution of the community's water-borne wastes must be recognised."⁷⁹ (This attitude of compromise contrasts with the spirit of the U.S.Clean Waters Act also brought in in 1972.It aimed to eliminate all discharge of pollutants into navigable waters including the ocean by 1985.⁸⁰)

The maximum penalties for breaches of the Act provided for in the Water Pollution Bill had been criticised as inadequate and these were doubled in the Clean Waters Bill but Jago was careful to point out that the concept behind the bill was that it should be "administered with an educative and persuasive approach rather than a punitive approach." Also a distinction should be made, Jago said, between those who pollute because there is no reasonable alternative available to them and those who pollute because it is the easiest and cheapest thing to do. Education and gentle persuasion had proved to be "protracted, inefficient and demoralizing on water pollution control staff" in New Zealand and the fines would be a backup for those who fell into the second category of polluters.⁸¹

The Water Pollution Bill had made provision for people or companies who had been regularly discharging pollutants into waters to be given a two year period of grace during which they could continue to discharge the same wastes at the same rate. During this time they would be able to install treatment plants. Jago had

⁷⁶ Clean Waters Act, 1972, Section 16(6).

⁷⁷ Mr. Jago, Water Pollution Bill, Second Reading, Legislative Assembly, 12th April, 1969.

⁷⁸ quoted in Bates, Environmental Law in Australia, p160.

⁷⁹ Moore & Wright, 'Water and Waste', p9.

⁸⁰ Annmarie Walsh, 'The Political Context', in Virginia Tippie & Dana Kester, eds, Impact of Marine Pollution on Society, Praeger,Mass., 1982, p3.

⁸¹ Mr. Jago, Clean Waters Bill, second reading, Legislative Assembly, 4th November 1970.

explained that extensions to that two years would inevitably be necessary.⁸² This two years or more exemption was a particular source of public complaint. The meeting of harbourside councils conservation and anti-pollution groups expressed their concern about it. This was time enough, a Bankstown Aldermen claimed, for pollution to kill the rivers.⁸³

Jago argued that immediate implementation of the Act's provisions were impracticable because industry "could not possibly cease operating as suddenly as that without disrupting the economy and other problems associated with drastic action of this kind."⁸⁴ The bill was amended, however, to ensure that, where a suitable alternative to disposal into a waterway was immediately available, such as discharge into the sewers, the discharger would not be given the two years exemption. On the other hand there was still provision for some industries to be given extra time beyond the two years.⁸⁵

The opposition, whilst not disagreeing with the general thrust of the legislation which represented a compromise between environmental protection and the protection of industrial interests nevertheless opposed the clause granting two years exemption to polluters. They pointed out that it was already nineteen months since the water pollution bill was first introduced and even before that the various laws did not permit many of the discharges that would now be given a two year exemption.⁸⁶ These polluters would not do anything about cleaning up their act till the two years had expired. The opposition wanted the blanket exemption to be replaced by individual discretionary exemptions when circumstances merited them and the details of these exemptions to be published. The opposition also did not like the escape provision in the Act which allowed the Minister to exempt people or premises from the provisions of the Act.⁸⁷

The State Pollution Control Commission incorporated the attitude of compromise implicit in the legislation. It stated its environmental control philosophy in 1975 as being based on "balance".

the Commission seeks to find a balance between environmental, social and economic factors. It does not demand that the environmental factors shall transcend the other factors, but it does demand that they shall receive adequate and balanced consideration⁸⁸

The flexibility of NSW legislation can be contrasted to that of Victoria. In a 1978 case in Victoria (*Phosphate Co-operative Co of Australia Ltd v Environmental Protection Authority*) the High Court ruled that only environmental considerations could be taken into account in determining licence conditions for discharge of wastes. Technical and financial burdens of the licence holder were deemed to be irrelevant. Similarly in the case of *Tarrant v. State Electricity Commission of Victoria*, where the action involved a government authority, the

⁸² Mr. Jago, Water Pollution Bill, second reading, Legislative Assembly, 12th April 1969.

⁸³ Telegraph, 11th June 1970.

⁸⁴ Mr. Jago, Clean Waters Bill, second reading, Legislative Assembly, 4th November 1970.

⁸⁵ ibid.

⁸⁶ Mr. K.J. Stewart, Clean Waters Bill, second reading, Legislative Assembly, 4th Nov. 1970.

⁸⁷ Mr. K.J. Stewart, Clean Waters Bill, In Committee, Legislative Assembly, 11th Nov. 1970.

⁸⁸ SPCC, Annual Report, Year Ended 30 June 1975, p15.

Environment Protection Appeal Board rejected evidence relating to the economics and politics of the proposal. It stated that "mere financial hardship" was not a valid reason for "failure to comply with conditions designed to protect the environment against pollution..."⁸⁹

Thus in Victoria, it is only at the stage of working out overall environmental quality objectives, that economic factors can be taken into consideration. Once those objectives are set, they must be applied to all individual licence applications.⁹⁰ The courts have ruled that the function of the Environmental Protection Authority "is not to minimise pollution to the extent consistent with maintenance of the existing or some other level of industrial and commercial activity"⁹¹ and that the objective of their Act was to require decisions to be made on licensing of discharge waste "only from the point of view of protection of the environment". This is markedly different from the attitude adopted by the SPCC in NSW.

More recently, the NSW Environment Planning and Assessment Act, 1979, has followed a similar compromise approach to that inherent in the Clean Waters Act. The Principles in the legislation state;

If, however, the Environmental Impact Statement suggests that the proposal should be rejected or curtailed on environmental grounds, there are other factors which must be considered. Such a decision should only be taken after it has been determined that the unavoidable detrimental considerations outweigh the beneficial considerations, after taking into account the pertinent social and political factors as well as the environmental factors.⁹²

STACKED COMMITTEES AND WEAK ADMINISTRATION

The compromise with polluters, both industrial and government, was incorporated in the administrative structure of the Clean Waters Act. It was to be administered by the Minister for Health with the assistance of an advisory committee. The Clean Waters Advisory Committee would have representatives from government and industry including the Director General of Public Health or his delegate (chair) and representatives from the Department of Public Works, the Chief Secretary's Department, the Water Conservation and Irrigation Commission, the Maritime Services Board, the Sydney Water Board, the Local Government Association, the Shires Association, primary industry, secondary industry, the Hunter District Water Board, the State Planning Authority of NSW, conservation interests and recreation pursuits and also two technical experts. All members would be appointed.⁹³ The committee would make recommendations and advise on classifications.⁹⁴

⁸⁹ D.E.Fisher, Environmental Law in Australia: An Introduction, University of Queensland Press, p181.

⁹⁰ Bates, Environmental Law in Australia, pp157-8.

⁹¹ Fisher, Environmental Law in Australia, p182.

⁹² quoted in Robert J Fowler, Environmental Impact Assessment, Planning and Pollution Measures in Australia, Australian Govt Publishing Service, Canberra 1982, p55.

⁹³ Mr. Jago, Clean Waters Bill, second reading, Legislative Assembly, 4th November 1970.

⁹⁴ Mr. Jago, Water Pollution Bill, second reading, Legislative Assembly, 12th April, 1969.

The composition of the advisory committee ensured a conservative bias and, as the opposition argued at the time, consisted of a majority of polluters of the State's waterways.⁹⁵ The groups represented, the opposition claimed, had a vested interest in pollution. The Water Board was particularly singled out as "the greatest single polluter of our waterways and water".⁹⁶ The representatives on the Advisory Committee might be dedicated and devoted but as public servants they were bound by the terms of their employment and by ministerial directions.⁹⁷

Despite the distortions and compromises inherent in the composition of the Advisory Committee the government ensured that the powers of the Committee remained subordinate to the government and another criticism of the Clean Waters Legislation was that the Committee would only have "fairy floss powers" and could only recommend and report.⁹⁸ It has been argued that the Committee was in fact intended merely "to act as a coordinating mechanism between government departments."⁹⁹

Disputes were to be settled by the Premier with no right of appeal. At the time the premier was also Treasurer and ministerial head of the water board and the opposition doubted that he would be likely to take sides against the Water Board, especially if a large sum of money was required to prevent pollution from the Board's primary treatment plants.¹⁰⁰ The opposition had contented that the Premier was basically concerned with financial costs and therefore he should not have the final say.¹⁰¹

When the State Pollution Control Commission was set up shortly afterwards the government was again careful to maintain control. The State Pollution Bill was introduced into the State Parliament at the end of 1970 by the Liberal Premier, Mr Askin. The bill provided for the setting up of an organisation which would have a supervisory, advisory and coordinating role with respect to pollution control, waste disposal and environmental protection and would be responsible to the Premier. It would also set environmental standards to be met.¹⁰²

Askin referred to the "growing awareness of the the serious problems posed by the contamination of the environment"¹⁰³ and at the second reading quoted President Nixon and referred to the forthcoming United Nations Conference on Human Environment which was to be held in 1972. He spoke of Australia benefiting from overseas experiences in order to avoid mistakes made elsewhere. The establishment of a State Pollution Control Commission (SPCC) would be the

⁹⁵ K.J. Stewart, Clean Waters Bill, second reading, Legislative Assembly, 4th November 1970.

⁹⁶ Mr. Cahill, Clean Waters Bill, second reading, Legislative Assembly, 5th November 1970.

⁹⁷ Mr. Petersen, Clean Waters Bill, in committee, Legislative Assembly, 10th November 1970.

⁹⁸ F.J.Walker, Clean Waters Bill, in committee, Legislative Assembly, 10th November 1970.

⁹⁹ Clark, 'The Philosophy of Australian Water Legislation', p14.

¹⁰⁰ Mr. Cahill, Clean Waters Bill, second reading, Legislative Assembly, 5th November 1970.

¹⁰¹ Mr. Petersen, Clean Waters Bill, in committee, Legislative Assembly, 10th November 1970.

¹⁰² Mr. Askin, State Pollution Control Commission Bill, Introduction, Legislative Assembly, 19th November 1970; Mr. Askin, State Pollution Control Commission Bill, second reading, Legislative Assembly, 24th November 1970.

¹⁰³ Mr. Askin, State Pollution Control Commission Bill, Introduction, Legislative Assembly, 19th November 1970.

main feature of a "coordinated and vigorous attack on pollution in all its forms."¹⁰⁴

The SPCC would not take over from any authorities already dealing with pollution but merely oversee these activities. It would achieve its purposes through cooperation with these authorities although it would have certain powers to direct them "in appropriate circumstances".¹⁰⁵ There were no sanctions or penalties for non-compliance with SPCC directives and it was envisaged that disputes would be settled by the Premier and enforced at ministerial or Cabinet level.¹⁰⁶

The Commission would have twelve members; the under secretary of the Department of Health, the under secretary of the Department of Local Government, the President of the Water Board and nine government appointees; a chairman, director and representatives of Local Government, the Shires Association, primary industry, secondary industry, commerce, conservation and recreation.¹⁰⁷ As in the debate over the Clean Waters Act, the opposition argued that the members of the Commission represented the main polluters and objected to the lack of power that the Commission and its advisory committee would have as well as the "paltry" fines of \$1000 for transgressors of the legislation.¹⁰⁸

There was also public criticism of the SPCC, after it was set up, for being heavily weighted towards government and business interests with no representation from unions, women's groups nor conservation lobbies.¹⁰⁹ The Commissioners were described as being "drawn from influence-wielding sectors of society". Apart from the legislated industrial representatives on the Commission the actual choice of members by the government reinforced this tendency. The first Commission had a director who had previously been a Director of Caltex Oil Company and Manager of A.O.R. oil refinery and even the Commissioner who had been appointed to represent conservation (disowned by the conservation movement) was NSW Manager of ICI (a major multinational chemical company) and Director of other chemical and plastics manufacturers.¹¹⁰

The opposition had argued that the Advisory Committee for the Clean Waters Act should have been made up of technical experts from a variety of disciplines such as zoologists, biologists, chemical engineers, ecologists, and oceanographers.¹¹¹ It was suggested that civil and mechanical engineers should be avoided since they were the ones responsible for existing sewerage outlets.¹¹² The subject of water pollution was technically complex and required scientific

¹⁰⁴ Mr. Askin, State Pollution Control Commission Bill, second reading, Legislative Assembly, 24th November 1970.

¹⁰⁵ *ibid.*

¹⁰⁶ *ibid.*

¹⁰⁷ *ibid.*

¹⁰⁸ *ibid.*; Mr. Askin, State Pollution Control Commission Bill, Introduction, Legislative Assembly, 19th November 1970

¹⁰⁹ *Sydney Morning Herald*, 25th October 1973.

¹¹⁰ Butlin, *Sydney's Environmental Amenity*, p35.

¹¹¹ K.J. Stewart, Clean Waters Bill, second reading, Legislative Assembly, 4th November 1970.

¹¹² K.J. Stewart, Clean Waters Bill, in committee, Legislative Assembly, 11th November 1970.

people rather than administrators that did not know what they were administering.¹¹³ The government responded to this criticism by claiming that most of Australia's pollution experts were within government departments such as the Water Board¹¹⁴ and that the government was following a world-wide trend in bringing the people who are principally involved into an advisory position.¹¹⁵

Nevertheless the SPCC legislation tried to combine expertise with government interests. It was to be advised by a technical advisory committee which was to be chaired by the SPCC director. The sixteen other members would be government appointees and would include officers from the Departments of Agriculture, Decentralisation and Development, Motor Transport, Public Health, Public Works, Conservation (or the Water Conservation and Irrigation Commission or the Soil Conservation Service) and the National Parks and Wildlife Service and the Chief Secretary's Department as well as representatives from the Metropolitan Waste Disposal Authority, the Water Board, the Maritime Services Board and the State Planning Authority and also a health inspector and three other persons with professional or technical qualifications.¹¹⁶

Before the SPCC was established in June of 1971 a general State election resulted in both parties promising to form a super-department to coordinate all environmental policies and activities so that when the SPCC finally got off the ground there was a Minister for Environmental Control and a Department of Environment which had similar powers of supervision and coordination as the SPCC. This not only created confusion and uncertainty but also encouraged a competitive approach to pollution control.¹¹⁷

The Minister for Environment Control made the SPCC dependent on the Department of Environment for funding and staff and the SPCC "was prevented effectively from building up its administrative arm".¹¹⁸ The SPCC in turn complained publicly that it had insufficient funds to be able to carry out its responsibilities.¹¹⁹ In its first annual report the SPCC argued for more centralised administration of pollution control legislation

Legislation relating to environmental control in New South Wales is fragmented and a number of authorities administer it. The proper evaluation and control of environmental problems of significance almost always involves more than one public authority.¹²⁰

In turn the Minister for Environmental Control, Mr Beale, complained that he was unable to recruit sufficient staff for his department and although his department was supposed to control all anti-pollution legislation, the Health Department administered the air and water pollution legislation and he had

¹¹³ Mr Haigh, Clean Waters Bill, second reading, Legislative Assembly, 5th November 1970.

¹¹⁴ Mr Coleman, Clean Waters Bill, second reading, Legislative Assembly, 5th November 1970.

¹¹⁵ Mr Jago, Clean Waters Bill, in committee, Legislative Assembly, 10th November 1970.

¹¹⁶ Mr Askin, State Pollution Control Commission Bill, second reading, Legislative Assembly, 24th November 1970.

¹¹⁷ Butlin, *Sydney's Environmental Amenity*, p31.

¹¹⁸ *ibid.*, p31.

¹¹⁹ *Sydney Morning Herald*, 24th November 1972.

¹²⁰ S.P.C.C., *Annual Report*, Year Ending 30 June 1972, p9.

been unable to get the staff of the Health Department who were engaged in this work under his control.¹²¹

The Telegraph took this opportunity to criticise the lack of action that had occurred with regard to water pollution by highlighting the condition of the Alexandra Canal into which, they claimed, 80 firms legally dumped 40 million gallons of waste every week including oil, acid, detergent, sludge, chemicals, tar and sewage.¹²²

because of the State Government's division of authority on pollution control between his [Beale's] department, the Health Department and the Public Works Department, Mr Beale can't do a damn thing about it.¹²³

In October of 1972 the SPCC was forced, upon instructions from Beale, to limit its activities and powers.¹²⁴ This followed the appointment of the Director of the SPCC, Mr Coffey, to the head of the Department of Environment, a move which would have given the SPCC a certain amount of power over the Department. Beale claimed his directive was made because he wanted the SPCC to concentrate on its supervisory and clean-up role. Other theories put forward by the Herald are that the SPCC was regarded as a failure or that the SPCC was a threat to cabinet because of its powers to direct other departments to take action with regard to pollution.¹²⁵

Beale had suggested the reconstitution of the SPCC into two bodies, one would be more widely representative of the community though having fewer powers and the other would be a proposed Ministry for Environment Control which would take over the advisory and regulatory functions of the SPCC.¹²⁶

Very similar problems were being experienced in Victoria at this time which point to the problem being a general one rather than specific to the SPCC. In Victoria the Environmental Protection Agency was being hamstrung by the Ministry of Conservation and was experiencing losses of staff, a lack of financial resources and interference from the Ministry which was usurping staff and resources. Such moves were impeding the ability of the regulatory agency to be effective in protecting the environment.¹²⁷

In Victoria the Head of the Environmental Protection Agency (EPA), Alan Gilpin, was forced out of his position by the government of the day. In NSW Beale announced his retirement amidst rumours that he was tired of heading a department without any significant power. The Herald suggested, in an article headlined "Portfolio Without Power", that Beale was able to pressure the government into setting up a small Ministry of Environment Control by

¹²¹ Sydney Morning Herald, 25th November 1972.

¹²² Telegraph, 27th November 1972.

¹²³ ibid.

¹²⁴ Butlin, Sydney's Environmental Amenity, p31.

¹²⁵ Sydney Morning Herald, 25th October 1973.

¹²⁶ ibid.

¹²⁷ Peter Russ & Lindsay Tanner, The Politics of Pollution, Visa, 1978, ch 2.

promising to go quietly at a time when the government "did not want a row over such a touchy issue as the environment with an election not far off."¹²⁸

The Herald suggested that the Government had tried to satisfy two completely opposite political lobbies, big business and the environmentalists both of which were perceived, at the time, to be Liberal voting groups.¹²⁹ It had instituted the structure for environmental reforms to please the conservationists but had not actively utilised that structure for fear of displeasing industry.

In an attempt to appear to reconcile the irreconcilable, the Government erected a facade of environment legislation which, in reality, was a portfolio without power.¹³⁰

Beale was replaced by J.B.M Fuller, previously Minister for Decentralisation and Development for many years, and Fuller was given the new title of Minister for Planning and Environment. The change of title from Environmental Control to Planning and Environment signified the desire to bring economic considerations within the embrace of environmental protection.

Shortly afterwards the Planning and Environment Commission Act was passed and the Department of Environment was abolished to be replaced by the NSW Planning and Environment Commission. The Act moved the staff administering the Clean Air and Waters Acts into the SPCC, thus reinforcing the SPCC's central role in pollution control and giving it direct control over the anti-pollution legislation. The Planning and Environment Commission would plan for the future environment whilst the SPCC looked after existing environmental problems.¹³¹

Today the SPCC retains its centrality in pollution control whilst the Department of Environment and Planning became the Department of Planning when the new Liberal State Government gained power in 1988.

CLASSIFICATION IS SUBVERTED

When the Clean Waters Act and Regulations came into force at the end of 1972 six classifications for waterways were prescribed:¹³²

S - Specially Protected Waters

no waste discharges permitted, impounded waters for public water supply, waters in the vicinity of an intake point for potable supplies, waters originating in nature reserves and national parks and in places of scientific interest.

P - Protected Waters

waters flowing into potable supplies, adjacent to oyster leases, tidal enclosures for public swimming, ocean-beach pools and similar recreational

¹²⁸ Sydney Morning Herald, 25th October 1973.

¹²⁹ ibid.

¹³⁰ ibid.

¹³¹ S.P.C.C., Annual Report, Year Ended 30 June, 1974; Butlin, Sydney's Environmental Amenity, pp31-2.

¹³² S.P.C.C., An Atlas of Classified Waters in New South Wales, S.P.C.C., January 1980, pp2-3.

areas, sensitive aquatic environments, waters flowing through parks and reserves.

C - Controlled Waters

waters which may eventually flow into public water supplies, large well flushed estuarine zones.

R - Restricted Waters

waters not used for domestic water supply, waterways affected by extreme variations in flows, to be safeguarded for recreational purposes and to ensure conservation of aquatic life and water-associated wild life.

O - Ocean Outfall Waters

unconfined coastal waters into which no wastes are to be discharged that might adversely affect beaches or marine life or that contain visible grease, oil or settleable matter.

U - Underground Protected Waters

In its first report in 1973, the Clean Waters Advisory Committee stated that classification of waters was a prerequisite for the granting of licences. The function of classification was to provide guidelines for specifying licence conditions and effectively to provide "a management plan for the waters classified". The most polluted waters would therefore be classified first.¹³³ Another writer has put the importance of classification more bluntly;

The classification attached to a waterbody determines, to a large extent, the degree to which it can be legally polluted.¹³⁴

The government had argued that water classifications could be upgraded as a particular river or waterway was cleaned up. No waters, they promised, would be given over completely to waste disposal as their exclusive use.¹³⁵ New Zealand had spent 17 years classifying 18 areas and the NSW government hoped to learn from this and stated that they intended to complete classification within 5 years.¹³⁶ However this resolve gradually faded. The SPCC reported in 1974 that classification work had been delayed because priority had been given to approvals and investigations which were necessary for immediate waste control but the long term necessity of classification for determining licence conditions was reaffirmed.¹³⁷

efforts have been concentrated on the control of pollution sources rather than on the detailed monitoring of water quality. It was accepted that the quality of many streams required improvement, and concentration on control of sources was considered to be the most effective line of action¹³⁸

¹³³ Clean Waters Advisory Committee, Annual Report, Year ended 30 June, 1973, p6.

¹³⁴ C. Joy, 'Management Policy and Practice' in C.Joy, W.Hickson and M.Buchanan, Liquid Waste Management, Botany Bay working paper no 2, Canberra, 1978, p60.

¹³⁵ Jago, Clean Waters Act, second reading, Legislative Assembly, 11th November 1970.

¹³⁶ Jago, Clean Waters Act, second reading, Legislative Assembly, 4th November 1970.

¹³⁷ SPCC, Annual Report, Year Ended 30 June 1974, p32.

¹³⁸ ibid., p28.

At the end of 1975 new regulations were introduced which made it an offence for anyone to discharge wastes into waters without a licence whether or not those waters were classified.¹³⁹ In their 1975 annual report the SPCC nonetheless claimed that water classification was a "fundamental concept of the Clean Waters Act". Priority was still being given to the most polluted waters and classification for polluted waters would be aimed at restoring "lost uses, such as swimming and other recreational activities."¹⁴⁰ The job of classifying waters was also transferred from the Clean Waters Advisory Committee to the SPCC, although the classification would still be approved by the Clean Waters Advisory Committee.

As late as 1977 the Clean Waters Advisory Committee was emphasising the importance of classification of waters as a means of "providing a statutory framework around which the Commission may formulate plans for the protection of waters".¹⁴¹ Nonetheless classification was virtually abandoned in 1979. The SPCC claimed that the work of classification was labour intensive and could not be continued in the face of staff cutbacks. Classification, they said, was unnecessary since licence conditions could be and were set for unclassified waters.¹⁴² Although the Georges River, Cooks River and Alexandra Canal were classified by this time, the Parramatta River, Botany Bay and Sydney Harbour remain unclassified despite the fact that a draft classification scheme for the Parramatta River and Sydney Harbour was presented to the Clean Waters Advisory Committee in 1978.

The labour intensity of the classification process is difficult to understand if the purpose of classification is taken literally. It would seem to be a simple matter to determine what uses a waterway was being or would be used for, whether it was used for drinking water, whether people fished or swam in it etc. In fact classification depended not just on the use of the waterway, it involved judgments regarding amenity values, costs, benefits, equity and a reconciliation of conflicting interests.¹⁴³

Classification reflected objectives that could "realistically" be achieved in the opinion of those working out the classifications. If a waterway was polluted from sources the SPCC officers felt they could not remove or prevent then they would classify it so that the water quality standard would not require what they felt was an unrealistic task.¹⁴⁴ Moreover, if the effluent of a sewage plant was going into a stream and there was no where else for it to go then the classification would have to allow for this.¹⁴⁵

For example a draft proposal for general guidelines for the classification of inland waters considered the implications of classification. It pointed out that

¹³⁹ SPCC, Annual Report, Year Ended 30 June 1975, p55.

¹⁴⁰ ibid., p67.

¹⁴¹ Clean Waters Advisory Committee, Bacteriological Criteria for Waters Classified Under the Clean Waters Act, Business Papers, 8th September 1977, p49.

¹⁴² correspondence, W.G.Hicks, S.P.C.C., to Richard Gosden, S.T.O.P., 30th June 1987.

¹⁴³ Joy, 'Management Policy and Practice', p60

¹⁴⁴ interview with Tony Farrugia, Senior Investigations Officer, Chemicals Branch, SPCC, 15th April 1987.

¹⁴⁵ interview with Russel Cowell, Officer-in-Charge, Water Investigations & Acting Senior Scientist, Water, SPCC, 7th April, 1987.

only class P (Protected) waters could flow into class S (Special) waters and that whilst it might be desirable to classify the waters in a National Park as S this would require all waters upstream to be P. Since national parks might be downstream from a number of discharges that would preclude a P classification, then the National Park rivers affected would have to be classified P rather than S, a necessary downgrading.¹⁴⁶ The logic of classification had therefore been reversed in the first few years of its operation so that instead of licensing discharges to fit classifications based on usage, the classifications were being worked out to fit in with existing discharges.

A further example of the distortion of the classification process was manifest when the classification for the Sydney Harbour Drainage Basin was presented to the Clean Waters Advisory Committee in 1978. It provided for the freshwater reach of the Parramatta River to be classified C (Controlled) in recognition of the improved conditions of the river since many industrial discharges had been diverted to sewer. The rest of the river and most small watercourses draining into the estuarine waters of the Sydney Harbour basin were classified R (Restricted) which was the lowest classification available for rivers. The draft report said

The major factors influencing the assignment of 'restricted' classification has been dry weather water quality and the capacity of waterways to assimilate wet weather discharges.... That section of the Lane Cove River that has been classified as 'restricted', receives large inputs of urban drainage as well as sewer overflows, which together cause substantial depletion of dissolved oxygen for periods of up to ten days after wet weather. Oxygen content in waters of this section of the river often fall to levels which are not capable of sustaining aquatic life. This classification makes due allowance for these occurrences, and the fact that this part of the river forms a closed-end estuary, but ensures that the waters are suitable for other beneficial uses.¹⁴⁷

The report included in appendix the effects the proposed classification was likely to have on licensed discharges in the region providing an indication that the issuing of licenses without classification was not necessarily the same as the issuing of licences after classification. Each licence change was accompanied by a note about the ability of the company affected to accommodate the change. Some were diverting their wastes to sewer.¹⁴⁸ Although this classification scheme was drawn up by the SPCC staff and recommended by the Clean Waters Advisory Committee¹⁴⁹, and although the Parramatta River had been publicly given priority in 1974,¹⁵⁰ this classification scheme was never implemented and the area remains unclassified.

Since, according to the report, the proposed classification was not going to seriously impact on private firms discharging into the waterways, one must

¹⁴⁶ Draft Proposal for the Classification of Inland Waters, presented at Clean Waters Advisory Committee Meeting, 11th August 1977.

¹⁴⁷ Classification of the Sydney Harbour Drainage Basin, presented at Clean Waters Advisory Committee Meeting, 9th March 1978, p25.

¹⁴⁸ ibid., pp29-31

¹⁴⁹ minutes, Clean Waters Advisory Committee Meeting, 9th March 1978.

¹⁵⁰ SPCC, Annual Report, Year Ended 30 June 1974, p30.

assume that it was the Water Board which objected to the proposed classification because of their sewage overflows which would not have been able to meet some of the higher classifications in the upstream areas of the drainage basin.

Similarly a proposed classification scheme for Botany Bay was drawn up for Botany Bay that made the major part of the Bay Class C (controlled) with Quibray Bay Class S (special) and Woolooware Bay as well as enclosed swimming areas Class P (protected). The Clean Waters Advisory Committee recommended that the classification be adopted, in 1979, subject to the SPCC checking with the Federal government about the classification of Weeny Bay (that included Commonwealth land) and subject to discussions with the then Planning and Environment Commission "in view of that Commission's interest in the area."¹⁵¹ Botany Bay was never classified.

It appears that the will of the SPCC was not enough to get these critical waters classified, although just at what level the interference came from is not clear. Classification was not in the interests of industry, nor developers, nor government authorities who needed to use the waterways for waste disposal. In the latter category, the main Sydney authority that uses the waterways in this manner, the Sydney Water Board, has not only to dispose of treated sewage but also to use the waterways as sewer overflow points during wet weather. In 1985, for example, it was suggested at a Clean Waters Advisory Committee Meeting that the conditions for waters classified P should be relaxed to permit the installation of sewer overflows, where necessary, in developing areas.¹⁵²

It seems that usage of the waterway was being interpreted as including usage for disposal purposes¹⁵³ and SPCC officers were spending much of their time and effort determining a compromise water quality standard that they thought could be achieved, that industries could accommodate and that didn't permit any obvious degradation of the waterway. It seems that it all proved too difficult and that it certainly wasn't possible using the given classifications. Moreover given the meandering of the classification process from its original purpose, it is little wonder that the SPCC found it to be an irrelevant process.

The SPCC claims that in the absence of classifications it nevertheless still sets standards for the water quality to be achieved in each waterway. The problem is that the process is no longer public and although polluters can object to the terms of their licence there is no longer any provision for the public to know or object to the water quality standards that are being set for various waterways. In 1977 the Clean Waters Advisory Committee had stated that classification could be interpreted as "a declaration of the Commission's intention to provide a specified degree of protection for a particular waterway".¹⁵⁴ By 1980 the SPCC had decided not to declare such intentions.

Classification was a way of publicly stating the maximum environmental cost that would be borne in catering for waste disposal. Each classification had to be proposed and publicly advertised before adoption. Any person was able to lodge

¹⁵¹ minutes, Clean Waters Advisory Committee Meeting, 8th February 1979, pp3-4.

¹⁵² minutes, Clean Waters Advisory Committee Meeting, 12th September 1985, p10.

¹⁵³ *ibid.*

¹⁵⁴ Clean Waters Advisory Committee, Bacteriological Criteria, p49.

an objection to the proposed classification and the objections were to be heard by a Clean Waters Appeals Board.¹⁵⁵ As the classification process came to a halt the Appeals Board was dismantled.

Standards can be regulated in various ways. Standards can be incorporated in the law but this would require uniform standards and would offer minimum flexibility. Moreover it would still require a system of policing and prosecution. Alternatively the law can delegate responsibility to some institution that would create and enforce standards. "The Australian system is characterized by the conferment of discretionary controls upon public institutions".¹⁵⁶

The abandonment of classification in NSW has increased the discretionary powers of the SPCC. Even with classification the SPCC had wide discretionary power in setting licence conditions. Classification merely set a minimum standard for guidance.¹⁵⁷ Without classification even that guidance is gone and SPCC can be completely flexible. They are able to differentiate between industries on the same waterway and change the water quality criteria rapidly and without consultation.¹⁵⁸

This serves to centralise power in the SPCC. It can be argued that this is advantageous because the SPCC can then accumulate expertise in pollution control and improve standards¹⁵⁹ but given the lack of independence of the SPCC from government their effectiveness depends very much on policy priorities of the government of the day¹⁶⁰ and given the composition of its membership, their ability to be rigorous with industry is limited.

If the SPCC fails to act against a polluter a private citizen requires the consent of the relevant Minister or the Director of the administering authority or the S.P.C.C. or some authorised person before they can institute legal proceedings.¹⁶¹ The role of the public in pollution control is therefore severely limited under the existing legislative system as it now operates. The two usual avenues for involvement in licensing and approval procedures are the provision for public submissions or third-party appeals but these are not available.¹⁶² Representation on committees is limited to government, industrial and commercial interest with few exceptions and so the only opportunity to have a say is through submissions which can be made when environmental impact statements for proposed developments are displayed or by invitation, which is at the discretion of the government and issued only to selected individuals.¹⁶³

Public participation is therefore confined to the planning of new developments. Pollution control has therefore "been implemented in a relatively closed administrative system, to which the public has been allowed either limited or no

¹⁵⁵ *ibid.*, p50.

¹⁵⁶ Fisher, *Environmental Law in Australia*, p170.

¹⁵⁷ Haigh, *Pollution in NSW*, p15018.

¹⁵⁸ interview with Derek Lowe, engineer, Clean Waters Branch, S.P.C.C., 15th April 1987.

¹⁵⁹ *ibid.*

¹⁶⁰ Coward, *Environmental Law in Sydney*, p57.

¹⁶¹ *ibid.*, p58.

¹⁶² Fowler, *Environmental Impact Assessment, Planning and Pollution Measures in Aust.*, p164.

¹⁶³ Bates, *Environmental Law in Australia*, p156.

access."¹⁶⁴ This reinforces a view that pollution control is an activity that requires specialist regulation and expert attention.

Given also the difficulties associated with legal recourse to the courts to resolve environmental problems, it is clear that administrative action in the field of environmental protection enjoys a relative broad immunity from public scrutiny.¹⁶⁵

Robert Fowler, who reported for the Federal Department of Home Affairs and Environment on environmental legislation, argued that this immunity from public scrutiny has fostered a 'co-operative' approach in the administration of environmental controls and he questions whether such an approach has been satisfactory. He argues;

The feeling is engendered by current licensing procedures and practices that only rarely will applications be absolutely refused, and that the principle aim of the technique is to conduct negotiations on a co-operative basis concerning the conditions which may be annexed to each licence. In such cases, there is no inducement for industries to seek to reduce their emissions below the levels achieved through compliance with the licence conditions, even should this become technically feasible.¹⁶⁶

This affect of this preference for a cooperative approach rather than a confrontational or strict enforcement approach is reinforced in the case of public authorities that pollute because of the provision in the legislation for directions by the SPCC to a body such as the Sydney Water Board to be subject to the overriding discretionary judgement of the Premier. In this way public authorities have "a form of political appeal in relation to public authorities which may be more sympathetic than the conventional appellate system to which private developers must resort."¹⁶⁷

STANDARDS, GOOD PRACTICE AND COMMUNITY DESIRES

Varying approaches can be taken with respect to environmental and pollution control standards. One approach is to concentrate on ensuring that all polluters install the "best available" or "best practicable technology". This latter is technology that is readily available and can be economically installed, that is installed by a business without destroying its profitability. In the United States the 'best available technology economically achievable' is the approach adopted by their Environmental Protection Agency.¹⁶⁸ This means that in the United States controls are uniform on various industries and make no allowances for the condition of watercourses into which the effluent will be going.¹⁶⁹

¹⁶⁴ Fowler, *Environmental Impact Assessment, Planning and Pollution Measures in Aust.*, p212.

¹⁶⁵ *ibid.*, p218.

¹⁶⁶ *ibid.*, p218.

¹⁶⁷ *ibid.*, pp162-3.

¹⁶⁸ Joy, 'Management Policy and Practice', p64.

¹⁶⁹ *ibid.*, p60.

The other approach is to regulate by setting effluent standards and allowing polluters to meet those standards in any way they see fit. Within this approach either uniform or ambient emission standards can be set. Uniform emission standards can be set for the waste streams of all industries wherever they are located and whatever their financial position. Ambient emission standards, however, are standards that vary according to the existing environmental conditions in the local area. The existing environmental conditions may include biological properties of the area, the uses to which the waters are put, and the actual despoiling that has already been suffered; a degraded area warranting less protection than a pristine one.¹⁷⁰

Classification, and de facto classification, as exists in New South Wales uses the ambient emission approach so that different industries have to conform to different standards depending on where they are located. Similarly sewage effluents on inland waterways must be of a higher standard than sewage effluents going into the sea. Such an approach is more flexible than uniform or maximum standards and allows the SPCC to take account of financial, political and technical limitations when setting licence conditions.¹⁷¹

A uniform standard is more equitable and simplest to administer but is thought to impose 'unnecessary' costs on government and industry.¹⁷² The NSW approach by considering the "relative assimilative capacities" of different waterways allows polluters to save money and use less than the best practicable technology in some situations. Environmental protection is therefore a goal mediated by what is considered to be "realistically achievable" and "realistic" is defined by economic considerations.

The setting of ambient emission standards incorporates three levels of objectives. The first are community goals which incorporate objectives for waterways in qualitative terms such as "suitable for swimming". These community goals can be translated into water quality standards that can be expressed quantitatively in terms of concentrations of pollutants. To achieve water quality standards, emission or effluent standards need to be set which specify limits for the concentrations and quantities of pollutants for each waste stream entering the waterway.¹⁷³

In New South Wales there is no mechanism for translation of community goals into water standards except indirectly through the political process of elected governments directing the State Pollution Control Commission. Thus, whilst the economic cost of cleaning up polluted water or preventing further deterioration of waterways is taken into consideration, they are not adequately balanced against the amenity values that various users (and future potential users) attach to a particular waterway and this means the evaluation of the benefits of clean waters can be underrated.¹⁷⁴

¹⁷⁰ Bates, Environmental Law in Australia, p162.

¹⁷¹ ibid., p163.

¹⁷² Clarence Davies, The Politics of Pollution, Pegasus, 1970, p156.

¹⁷³ ibid., p153.

¹⁷⁴ Joy, 'Management Policy and Practice', p64.

If the public is denied input into the legislative process, and this has certainly occurred since classification ceased, then levels of pollution that are determined to be 'acceptable' are based on judgements of public servants in negotiation with industry and government authorities. Moreover, classification (and its de facto confidential replacement) can be considered to be merely a holding operation since water quality standards tend to be based more on existing standards and their protection or slight improvement rather than on ultimate goals for water usage.

The second translation, from water quality standards to effluent standards is also problematical and is not a simple matter of mathematics or analysis. A number of assumptions and value judgements need to be made and usually what ends up happening is that effluent standards tend to be based on "good practice" rather than being directly related to water quality criteria.¹⁷⁵

"Good practice" implies the use of currently available pollution control technology that can be economically installed. Effluent standards are therefore arbitrary in that they are seldom related to water quality except that in cases where the waterways have a low classification, something less than "good practice" or "best practicable technology" can be required. This is what happens in NSW and "best practicable technology" is defined as technology that is already used in other countries, particularly the U.S., Europe and N.Z.¹⁷⁶

THE IMPACT OF LEGISLATION ON ENGINEERING DECISIONS

The reliance of the legislation on best practicable technology and the preponderance of engineers in the SPCC, who decide what the best practicable technology is, means that the sewerage treatment paradigm is reinforced rather than challenged by the law and its agents. In practice, when the SPCC is dealing with sewage effluents in various parts of the state, they inform the relevant authority of the water quality objectives that they would like to achieve downstream of the treatment works (generally given in terms of BOD and suspended solids concentrations) and leave it up to the authorities themselves to install the appropriate equipment to achieve the desired water quality objectives.¹⁷⁷

In Sydney the licences for the Water Board's main ocean outfalls indicate required treatment technologies rather than effluent quality. For example the Malabar licence states that the Water Board may discharge up to 650 ML/day in dry weather conditions and that this flow "shall receive screening, degritting and primary treatment". The only requirements in terms of effluent quality are that non-filtrable residue in the primary treated effluent should be not less than 0.4 in 50% of samples and that samples should contain less than 40mg/l of grease and oil in 50% of samples and less than 60mg/l of grease and oil in 90% of samples. There are no limits on Biochemical oxygen demand, toxic waste, bacterial or viral concentrations set down in these licences.¹⁷⁸

¹⁷⁵ Clarence Davies, The Politics of Pollution, p155.

¹⁷⁶ interview with Derek Lowe, engineer, Clean Waters Branch, S.P.C.C., 15th April 1987.

¹⁷⁷ ibid.

¹⁷⁸ licence for Malabar S.T.P., in force until 1st May 1989.

For the North Head sewerage treatment plant, where primary treatment is not carried out, the licence conditions are relaxed accordingly. They specify only that the flow needs to receive screening, degritting and scum removal. There are no conditions on grease or non filtrable residue levels.¹⁷⁹ The licence conditions for Bondi are very similar to those at Malabar except that less grease and oil is allowed.¹⁸⁰ Presumably because there is less grease and oil in the effluent to start with.

The Board also has two other sewerage treatment plants discharging into the ocean off Sydney's coastline. At Cronulla the licence conditions do not allow sludge to be dumped and at Warriewood where secondary treatment is used, the licence conditions specify secondary treatment.¹⁸¹ It is obvious that licence conditions reflect the existing levels of technology installed by the Sydney Water Board rather than water quality objectives. The SPCC are able to do this since the ocean waters have not been classified.

The power of the SPCC to act against polluters is restricted by its lack of staff. In 1987 they only had five inspectors in Sydney to check up on discharges to make sure that no one was discharging without a licence and those with licenses were keeping to their licence conditions.¹⁸² The SPCC is increasingly forced to deal with this problem by getting polluters to monitor themselves, by putting self-monitoring conditions into the licences. In Sydney, the licence conditions for the main ocean outfalls specify what monitoring must be carried out. The Water Board has to take daily samples of primary treated effluent to check for non-filtrable residues and total oil and grease as well as quarterly samples to check for Biochemical oxygen demand, pH, hydrogen sulphide, phosphorus, faecal coliforms, Zinc, Lead, Copper and Chromium. There is no requirement for sludge to be monitored or restricted substances in sludge to be measured. Beach waters are to be checked by the Board on 5 separate days out of 30.¹⁸³

The self-monitoring process has led to a certain amount of scepticism about this monitoring. It has been pointed out that the five samples that the Water Board is supposed to take could be taken on days of their choosing, for example when an offshore wind is blowing so that results will be good. Also readings are done during the day, whilst sludge is dumped at night.¹⁸⁴ The irony is, however, that the results of this monitoring do not have to meet legally enforceable standards outside of what is specified in the licences. The SPCC publishes guidelines for bathing water standards but these have no legal force. The guidelines, "Design Criteria for Ocean Discharge" are published for the benefit of polluters so that they will know the criteria the SPCC will consider in reviewing applications for licences to discharge.¹⁸⁵

¹⁷⁹ licence for North Head S.T.P. in force until 1st May 1989.

¹⁸⁰ licence for Bondi S.T.P. in force until 1st May 1989.

¹⁸¹ licences for Cronulla and Warriewood sewage treatment plants.

¹⁸² interview with Russel Cowell, Officer-in-Charge, Water Investigations & Acting Senior Scientist, Water, SPCC, 7th April, 1987.

¹⁸³ for example, licence for Malabar S.T.P., in force until 1st May 1989.

¹⁸⁴ Richard Gosden, 'Sewerside Culture', *Engineering & Social Responsibility* 2(2), March 1985; *Sydney Morning Herald*, 17th January 1989.

¹⁸⁵ S.P.C.C., *Design Criteria for Ocean Discharge*, Environmental Design Guide WP-1.

The Water Board has never been keen on bacteriological standards because of the fear that they might be forced to install a higher degree of treatment than they would prefer. During 1959 when the Board was drawing up its plans for treatment at the outfalls, one of their representatives told a conference,

In the absence of a sound basis, the arbitrary setting of a justifiably high standard for bathing water quality and/or errors of judgement in determining the form of sewage treatment required to meet the standard, could result in needless expenditure of public funds on the construction and operation of unduly elaborate sewage treatment works.¹⁸⁶

Brown and Caldwell concurred a few years later when they were drawing up their own plans for treatment at Malabar, saying that the use of "unjustifiably high standards" would result in the provision of a degree of treatment which might not be necessary and this would result in an unnecessary expenditure of public funds.¹⁸⁷ The Board therefore did its best to ensure standards established could be met by their intended treatment and disposal technologies.

The SPCC's bathing water guidelines, often referred to as WP-1, were first drawn up after the Sydney Water Board's consultants, Caldwell Connell, requested guidelines for what conditions the proposed submarine outfalls would have to meet in order to get approval from the SPCC to go ahead. The guidelines subsequently drawn up and published in 1974 specify qualitative criteria for floatables, biochemical oxygen demand and settleable matter and quantitative levels of faecal coliforms concentrations and concentrations of several restricted substances.¹⁸⁸ (Faecal coliform are organisms that occur naturally in human and animal guts. The e-coli, a sub-group which is most commonly used, are usually harmless)

The faecal coliform standards were different for summer and winter. Between November and May in areas designated as bathing waters the geometric mean of at least five samples taken in a 30-day period was not to exceed 200 faecal coliform bacteria per 100ml. Also, only three samples taken during the November-May period were allowed to exceed 400/100ml. During the rest of the year the geometric mean could not be more than 1000/100ml and only three samples could exceed 2000/100ml.¹⁸⁹ The relaxing of standards during the winter was particularly convenient for the Water Board with their planned submarine outfalls since the submerged field could not be maintained during the winter time because of a lack of a thermoclyne when surface waters were cold. According to their own predictions pollution would inevitably be worse in the winter time.

In 1979 the Sun reported that faecal coliform tests might be out of date. Quoting "an eminent American doctor", Dr Victor Cabelli, professor of microbiology at the University of Rhode Island, and other U.S. experts they said that standard level

¹⁸⁶ Conference of Professional Officers Representing the Authorities Controlling Water Supply and Sewerage Undertakings Serving the Cities and Towns of Australia, Report of the Proceedings of the Ninth Conference, Melbourne, 1959, paper no 4.

¹⁸⁷ Brown & Caldwell, Design Report: Malabar Sewerage Treatment Works, M.W.S.&D.B., July 1965, p8.

¹⁸⁸ SPCC, Design Criteria for Ocean Discharge, Environmental Design Guide WP-1.

¹⁸⁹ ibid.

of 200 faecal coliform/100 ml of water (the standard used for mean samples in summer in Sydney) was determined in the 1950s. Dr Victor Cabelli had conducted a study for the US Environmental Protection Agency which found that faecal coliform were not a good indicator of sewage pollution.¹⁹⁰

A couple of days later the SPCC announced that it would review its testing standards for sewage pollution of Sydney's beaches after finding that faecal coliforms were not a satisfactory indicator and that health risks could not be satisfactorily evaluated in that way.¹⁹¹ An SPCC report published that year as part of a study of Botany Bay on "Health Aspects of Faecal Contamination" examined the question of using faecal coliforms as an indicator. It noted that the detection of pathogens and their identification was an expensive and time consuming process and the difficulties involved had lead bacteriologists to adopt the concept of indicator organisms.¹⁹²

An ideal indicator would be present when pathogens were present, be easily tested for, and survive longer than enteric pathogens. The e.coli bacteria, a faecal coliform bacteria, had traditionally been accepted as an indicator of faecal pollution and intestinal pathogens in water and it had been assumed that they would survive as long as or longer than pathogens. It had since been realised that e.coli might die off more quickly than some pathogens and it had been reported in 1975, for example, that the survival times for enteric viruses were far greater than faecal coliforms. Whilst it was expected that 90% of faecal coliforms died in 30 mins to 9 hours, enteric viruses survived from 2 days to 130 days in sea water.¹⁹³

Chlorination or disinfection made the discrepancy worse so that some bacteria might be inactivated by the disinfection but viruses might not be. Moreover another study had shown Salmonella in water containing reduced numbers of e.coli. Also the variation in mortality rates because of the effect of solar radiation on faecal coliform meant that

distributions of pathogens from ocean outfalls and calculations of dilutions will include large errors if faecal coliform measurements are only carried out during daylight and corrections are not made for varying mortality rates.¹⁹⁴

The SPCC report concluded that faecal coliforms were inadequate as an indicator of pathogens because the presence of e.coli only indicated recent contamination, the absence of e.coli would not mean an absence of pathogens and finally, decreases in faecal coliform levels didn't necessarily correspond to similar decreases in levels of pathogens, particularly viruses.¹⁹⁵ The SPCC noted that the earliest water quality standards for bacteria were "based mostly on

¹⁹⁰ Sun, 21st November 1979.

¹⁹¹ Sun, 23rd November 1979.

¹⁹² SPCC, Health Aspects of Faecal Contamination, Environmental Control Study of Botany Bay, January 1979, p5.

¹⁹³ SPCC, Health Aspects of Faecal Contamination, p7.

¹⁹⁴ ibid., p9.

¹⁹⁵ ibid.

engineering feasibility rather than epidemiological and scientific data" and yet these were accepted worldwide.¹⁹⁶ This seems to be still the case.

The WP-1 guidelines are based on 'best practicable technology' available at the time and were drawn up by the SPCC engineers.¹⁹⁷ The Clean Waters Act provides for the waters at ocean outfalls to be classified 'O' for ocean outfall waters and this is the only possible classification. Yet neither the licence conditions nor the guidelines for approval of sewage treatment plants seem to conform with the requirements for class 'O' waters as defined in the Act. The Clean Waters Regulations under the Act state that wastes are not to be discharged into these waters

- (1) unless the wastes are visually free from grease, oil and solids and free from settleable matter; and
- (ii) where the pH value of the wastes is more than 8.5 or where the discharge induces a variation of more than 0.1 in the pH value of any waters outside the mixing zone; ¹⁹⁸

and yet neither the licence nor the WP-1 guidelines specify conditions for pH values of the Board's discharge. The first condition that the wastes be visually free from grease, oil and solids is translated in the licence conditions into a numerical oil and grease concentration limit which (if the licence conditions are being adhered to) nevertheless causes the sewage field to be regularly visible.¹⁹⁹ The WP-1 guidelines translate free from settleable matter into a condition that settleable solids will not be permitted unless the applicant can demonstrate that they will not accumulate in less than 10 metres of water or within 1 km of the shoreline and that outside this area, no "significant adverse effects on the benthos" is likely to occur.²⁰⁰

The Clean Waters Regulations go on that wastes are not to be discharged if the resulting concentration of wastes in the waters-

- (i) is or is likely to be harmful, whether directly or indirectly, to aquatic life or water-associated wildlife;
- (ii) gives rise or is likely to give rise to abnormal concentrations of the wastes in plants or animals; or
- (iii) gives rise to or is likely to give rise to abnormal plant or animal growth.²⁰¹

yet there are no conditions in the licences that marine life should even be monitored or that concentrations of restricted substances in the wastes should be restricted. The WP-1 guidelines say that applicants should provide some relevant information such as concentrations of restricted or other deleterious substances

¹⁹⁶ *ibid.*, p17.

¹⁹⁷ Minutes, Clean Waters Advisory Committee Meeting, 10th September 1987.

¹⁹⁸ Clean Waters Regulations, 1972 under the Clean Waters Act, 1970, New South Wales, p11.

¹⁹⁹ for example, licence for Malabar S.T.P., in force until 1st May 1989.

²⁰⁰ SPCC, *Design Criteria for Ocean Discharge*.

²⁰¹ Clean Waters Regulations, p12.

and also provides a table of allowable restricted substances.²⁰² These allowable levels are worked out in the absence of any scientific work on the effects of these substances in Sydney's marine waters. The few studies of marine life which have been done show that the level of restrictions stated in the guidelines do not provide the protection that the legislation requires. (more about this in chapt. 7).

The lack of consistency between the WP-1 guidelines and the Clean Waters legislation reflects the ability of the engineers to remove themselves from the legislative process which is supposed to reflect the public will as interpreted by the politicians. The engineers make their own decisions which then commit the public because of the large sums of money being spent. Such a situation ensures that the existing sewerage treatment paradigm remains unchallenged and legislation is not an effective force in the decision making process.

Moreover the weakness of the SPCC, as a regulating agency, with respect to the Board is manifest. At the end of 1979 the SPCC seemed unable to get even the most essential information from the Water Board which was supposed to be monitoring itself as part of its licence conditions. An internal report observed

The monitoring results supplied by the Board do not lend themselves to analysis to see whether they comply with WP-1 bathing area criteria. The readings are too few for any one month. . .

Water Board monitoring results are not currently a true indication of the level of pollutants, e.g. toxicants and heavy metals, discharged to the ocean.²⁰³

In 1987, the SPCC attempted to revise the WP-1 guidelines to provide guidelines for new sewerage treatment works throughout the State which take account of increased community expectations and cater to criticism leveled by environmentalists.²⁰⁴ The SPCC argued that the revision was necessary because ocean outfalls were being proposed by other NSW sewerage authorities, because the community was no longer happy with looser standards for winter, and because

The criteria apply to industrial as well as municipal discharges. The schedule of restricted substances has been publicly criticised by environmental groups and is now so outdated that it cannot be scientifically justified.²⁰⁵

This move was blocked by the Sydney Water Board. The Water Board had never been happy with the new legislation introduced in early 1970s because it impinged on their autonomy, particularly with regard to discharge of sewage, industrial waste and the installation of sewer overflows.²⁰⁶ At the time they had applied for an exemption from the Clean Waters Act.²⁰⁷ They did not appreciate the idea of being "subservient" to another government authority that could insist

²⁰² SPCC, Design Criteria for Ocean Discharge.

²⁰³ SPCC, Monitoring of Ocean Beaches for Sewage Pollution, internal report, 13th Nov. 1979.

²⁰⁴ Clean Waters Advisory Committee Meeting, Business Papers, 10th September 1987.

²⁰⁵ ibid., p25.

²⁰⁶ M.W.S.&D.B. Minutes, 17th September 1969.

²⁰⁷ ibid.

that the Board undertake work without any appreciation of the Board's other activities and responsibilities. Such an authority would be only concerned with pollution and could force the Board to place greater emphasis on "anti-pollution measures" without having any idea of the Board's other problems.²⁰⁸

The proposed introduction of new WP-1 guidelines was an example of a conflict of interest between the SPCC and the Water Board that reaffirmed the Board's power. The Sydney Water Board objected to the new guidelines even though they would not be applied to the Board's outfalls and were meant merely as guidelines for new applicants for licences. The Board's representative on the Clean Waters Advisory Committee, John Browne, said that the Board would have trouble meeting the new guidelines with their proposed submarine ocean outfalls. The Board would have problems with the aesthetic criteria, the removal of settleable matter, the protection of in-shore waters and levels of restricted substances. He didn't want the guidelines to be published till after the commissioning of those outfalls (in the 1990s) because although the Board would not have to meet them, the public would use them to re-open debate about the submarine outfalls and to try and force more treatment to be installed.²⁰⁹ In other words it would have been bad for the Board's public relations.

The representative of the Public Works Department, which is responsible for sewage treatment works throughout the State, also argued against the introduction of the new guidelines. He argued that the section on restricted substances should be omitted and also feared that there would be public pressure to have existing outfalls retrofitted to meet the new guidelines.²¹⁰ The Clean Waters Advisory Committee did not approve the new guidelines and the SPCC was unable to introduce them.

It shows the extent of the power of government polluters that they are able to stop SPCC actions that are not directed at them and have no legal standing, merely because they might be bad for public relations. The old standards therefore continue to be applied to new ocean outfalls and industrial polluters throughout NSW despite being out of date because of the power of Sydney based polluters.

Such instances of conflict between the Water Board and the SPCC are fairly rare however, because both organisations employ engineers who subscribe to the same paradigm. Whilst Caldwell Connell were undertaking their feasibility study for the Water Board, the SPCC got one of their consultants, Paul Ryan, a retired university engineering professor, to do a review of the engineering literature on submarine outfalls for the purposes of informing authorities who might be considering such projects and for the SPCC's own use in assessing applications made by such authorities to the SPCC for approval under the Clean Waters Act.²¹¹

Ryan concluded firstly that submarine ocean outfalls were the most advanced method of ocean disposal, "they are certainly the most recent development". The

²⁰⁸ *ibid.*; MWS&DB Minutes, 16th July 1969.

²⁰⁹ minutes, Clean Waters Advisory Committee Meeting, 10th September 1987.

²¹⁰ *ibid.*

²¹¹ Paul Ryan, Submarine Ocean Outfall Sewers, undated, preface

United States, particularly California, was virtually the only place to use them. The capital cost of such outfalls was usually less than that of secondary treatment (usually activated sludge plants) and the running costs were considerably less and once built secondary treatment would be unnecessary.²¹² Ryan also concluded from his review that there was no evidence "that the submarine ocean outfall sewer discharges would have a deleterious effect on marine fauna and flora" provided that certain conditions of discharge were adhered to including the "rigorous source control of toxic and other deleterious wastes".²¹³

Nor is the regulatory agency necessarily a force for improved standards of effluent. In 1974, the Water Pollution Control Branch, which was then part of the Health Commission and later moved to the SPCC, reported to the Clean Waters Advisory Committee on methods of discharging of wastes into the ocean. The report looked favourably upon the discharge of minimally treated sewage through a submarine ocean outfall. This would avoid the need for sedimentation tanks and sludge digesters. They suggested that the Board's plans to install primary treatment and submarine outfalls at the Malabar, Bondi and North Head, was overly extravagant.²¹⁴

In the selection of any of the above alternatives for ocean discharge of wastes, it is necessary, in addition to considering the many factors involved in the protection of the beneficial uses of the receiving waters, that the alternatives be subjected to economic comparisons to arrive at the most economical proposition.²¹⁵

Ryan, as an engineer, concurred fully with the philosophy of minimum treatment. He argued that in many cases full primary treatment with sedimentation and sludge collection treatment and disposal could be eliminated.²¹⁶ He claimed that there was a recent development in use of submarine outfalls that tended towards minimal treatment of the sewage before discharge and that this trend, together with U.K. findings that there was negligible effect on health of bathing in "sewage-diluted sea water",

indicated a return to "common sense" in these matters which may obviate the wasteful expenditure of vast sums in the provision of uneconomic and needlessly sophisticated facilities.²¹⁷

Thus, the SPCC was amenable to the idea of High-Rate Primary Treatment well before the Water Board finally decided to install it at North Head some years later. Decisions by the regulatory authority were therefore, neither based on "best available" nor "best practicable technology". Nor were they based on legislated standards of water quality or effluent standard. The discretion available to the SPCC and its staffing by engineers combined with its lack of

²¹² *ibid.*, p216.

²¹³ *ibid.*, p217.

²¹⁴ Business Papers, Clean Waters Advisory Committee Meeting, 18th April 1974.

²¹⁵ *ibid.*

²¹⁶ Ryan, Submarine Ocean Outfall Sewers, p216.

²¹⁷ *ibid.*, p12.

power over other government authorities has meant that it is not an effective regulatory force and that it has virtually no influence on engineering decisions.

CONCLUSION - DIVERSION OF WASTES AND RESPONSIBILITY

Despite the various calls for a comprehensive approach towards waste management and pollution and calls for a single overall authority throughout the 1960s and early 1970s the NSW government was reluctant to give the overriding power and responsibility to a single authority and much of the existing fragmented legislation and dispersed authority was maintained despite the introduction of the Clean Waters Act and establishment of the State Pollution Control Commission.

The need for the government to consider and act upon the various environmental impacts of industrial activity became clear in the face of obvious environmental degradation and increasing public concern. But this need was never allowed to overshadow the greater need to encourage and promote industrial activity and maintain political control. This was ensured by limiting the power and funding of the pollution control authorities and biasing the composition of committees and commissions in favour of those representing industrial and government interests.

Waste management was always considered in terms of disposing of wastes rather than in terms of an overall approach which considered the whole manufacturing process and ways of reducing wastes and preventing the generation of harmful and intractable or nondegradable wastes. Since 'management' meant finding a place for waste disposal the use of waterways for disposal has been a necessary part of waste management strategy. N.G Butlin described the approach taken in Sydney as "partial prohibition", an approach which aims to "regulate the impact of wastes" on the environment.

In short, the current administrative system does not aim to prevent in a systematic way the generation of wastes; it is oriented towards 'accepting' and coping with existing volumes of wastes and shifting partially treated volumes to different parts of the environment.²¹⁸

Classification determined the degree to which a body of water could be polluted. The degree of pollution allowed depended very much on the judgement, made by the regulating authority, about amenity values, water use, costs, benefits, equity and reconciliation of conflicting interests. Rather than controlling pollution by insisting that industries install the "best practicable technologies", the N.S.W. approach was to allow industries to take advantage of the "relative assimilative capacities" of different waterways and use lesser technologies wherever possible.

The Clean Waters Act, in aiming to clean up waterways without harming industry, was careful to minimise the economic penalty that would be suffered by industry and was unwilling to set down hard and fast standards for effluents that industries might not be able to meet using cheap and readily available technologies. By placing public standards on the water ways and negotiated, unpublished standards on each waste discharge via the licence conditions, the regulatory agencies were able to be more flexible about what they required of

²¹⁸ Butlin, Sydney's Environmental Amenity, p67.

particular industries and could take account of what each firm and also the Water Board argued that they could or could not afford to do.

Classification had been the means of publicly applying specific standards. The discontinuation of classification of waterways has meant that the pollution licensing procedure is not based on legally set standards but is based on the judgement of officers of the relevant regulatory authority. The opportunity for the public to have a say in the setting of standards was therefore reduced and the discretion of the regulatory agency became paramount. It has reinforced a situation whereby policy decisions are kept within bureaucracies rather than being debated by the public. Moreover, there is no provision in the legislation for public participation in either the policy making processes or the enforcement of pollution controls. Pollution problems are being pushed "away from the overt political process and into the hands of the technologists, the 'neutral' experts."²¹⁹ This is despite the fact that such decisions involve social and political choices.

A characteristic of the SPCC, which is common to many regulatory bodies, is the tendency for employees to subscribe to the prevailing engineering paradigms. The regulatory body reflects in microcosm the ideas, values and professional attitudes that operate in the wider technological system which they are regulating. Typically the collective background of personnel in the regulatory body gives a shared framework of orientation and appraisal of the larger system or network.²²⁰

Pollution control authorities employ and are advised by engineers who inform them of what can technically be achieved and what can not; in other words pollution control authorities will usually base their standards on what can be achieved by the existing paradigm. Therefore the only mechanism that exists for evaluating the performance of the paradigm - legislation and regulation - becomes a tool for perpetuating the paradigm if standards are based on "best practicable technology" or less.

The impact of legislation on engineering decisions is also minimised by a licensing and approvals procedure which often seems to be inconsistent with the legislation and, in the case of Water Board treatment works and discharges, to be surprisingly accommodating. The whole legal process in this area involves a process of negotiation; negotiation about which parameters should be taken as measures of compliance (e.g. faecal coliform) and the levels that these parameters should be set at. This negotiation process occurs between government bodies and between government and industry and there is almost no community input. Engineers in both industry and government bureaucracies seek to redefine legislation and "practicability" to suit their own ends.

The Clean Waters Act was originally aimed at cleaning up the rivers by ridding it of point source industrial waste. Its implementation forced some industries to install rudimentary pretreatment equipment but the main accomplishment of the Clean Waters Act was the diversion of industrial wastes from Sydney's rivers to its sewerage system. Paul Landa, when Minister for Planning and

²¹⁹ Joy, 'Management Policy and Practice', p68.

²²⁰ Henk Bodewitze al, 'Regulatory science and the social management of trust in medicine', Wiebe Bijker et al (eds), The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology, MIT Press, 1987, p244.

Environment, boasted that trades wastes from over 6000 factories had been connected to the sewerage system from the commencement of the Clean Waters Act in 1972 to the end of 1978.²²¹

The rivers were therefore cleaned up at the expense of the ocean and bathing beaches. Thus the pollution was transferred from the rivers to the oceans and beaches. The crisis of the late 1960s was met by "relocating discharge points and disposal responsibilities"²²² As industrial wastes increase in volume and change in composition as new chemicals are processed the contradiction between waste disposal and maintaining environmental amenity are likely to worsen under this sort of approach.²²³

The dependence on the Water Board in achieving the primary goals of the Clean Waters Act is clearly recognised by the SPCC

The existence of a well planned major sewerage system which discharges via ocean outfalls and serves the industrial areas of the basin, and the cooperation of the Metropolitan Water Sewerage and Drainage Board in accepting increased loads of industrial wastes, has made the implementation of point source control effective from the outset.²²⁴

This obviously gave the Board a measure of power in its dealings with the SPCC and has made it very difficult for the SPCC to regulate the Board's discharge since then. Fowler noted that negotiations over the conditions to be imposed in approvals of new plants "would have a delicate aspect" because of the SPCC's dependence on the Board in relation to the acceptance of industrial waste. Rather than increase licence conditions and get individual firms to install more effective pollution control measures, the SPCC has taken the easy way out and diverted the pollution to other areas of the environment that are assumed to be less sensitive.²²⁵

The problem of industrial waste was transferred to the Sydney Water Board and so, in the next chapter, the use of the sewers for the disposal of industrial waste and the regulation of this practice will be considered.

²²¹Paul Landa, Minister for Planning and Environment, letter to O.H.Miller, 21st November 1978.

²²²Joy, 'Management Policy and Practice', p74.

²²³*ibid.*

²²⁴Classification of the Sydney Harbour Drainage Basin, Clean Waters Advisory Committee Meeting, 9th March 1978, p22.

²²⁵Fowler, Pollution in NSW, p154.