REVIEW ARTICLE ENVIRONMENTAL IMPACT ASSESSMENT: WHY REFORM IS NEEDED *

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Experiences of environmental impact assessment (EIA) for some major transportation projects, particularly in urban areas strongly suggest that decisions have been made with highly adverse environmental consequences. Political and bureaucratic influences have overridden scientific and economic inputs to the EIA process subverting the intent of environmental legislation. This imbalance could be considered as a corruption of democratic government in favour of vested interests. Reform of the process must therefore involve redrafting of legislation, at the same time making it uniform throughout Australia. Timely disclosure of information will be assisted by appropriate change in freedom of information legislation throughout Australia in order to prevent bureaucratic delay and prevarication. Disclosure will also be assisted by revision of the defamation laws so that public comment on the activities of proponents, bureaucrats, consultants and politicians will not be inhibited. Judicial inquiries requiring environmental evidence by affidavit and subject to cross-examination may prove to be the most cost-effective way of ensuring overall integrity of the process. These matters are discussed with reference to a recent book on EIA.

Keywords: environmental impact, assessment, legislation, reform, subversion, corruption, predetermination.

INTRODUCTION: THE BOOK AND ITS AUTHOR

This new book on environmental impact assessment by Alan Gilpin is a comprehensive and concise account of world practice in the area. Overall, I find that the manner in which the different components of the EIA process have been brought together, explained and illustrated mark the book as outstanding. It has led me to compare Gilpin's views with my own experience of EIA, mostly in Australia.

The scope of the book is impressive. It begins with approaches to EIA, including its historical development, terminology and political determinants. EIA procedures are addressed with particular reference to environmental impact statements (EISs), decision making and auditing. Various EIA methodologies are discussed including

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cost-benefit analysis. Some prominence is given to public participation in the EIA process in the form of inquiries, the Court, mediation and more specialised approaches. The inputs of international organisations such as the Organisation for Economic Cooperation and Development (OECD) and the World Health Organisation (WHO) are dealt with in the context of case studies in different parts of the world. The approaches to EIA in Europe, the Nordic Countries, North America, Asia and the Pacific region follow, with some illustrations, particularly from Australia and the Asia-Pacific region. The book concludes with a chapter on the future of EIA in the 21st century. In addition to references and notes for each chapter, the book includes a comprehensive general bibliography of seven pages to assist future research. It is thoroughly recommended as an important reference work for university staff, students and practitioners.

Alan Gilpin is particularly well qualified in the field as he was one of the NSW Commissioners for Environment and Planning and the first operational chairman of the Victorian Environment Protection Authority. We learn from the description accompanying the book that he was dismissed from that position for standing by its independence.

THE NEED FOR UNIFORM ENVIRONMENTAL LEGISLATION AND THE ROLE OF COST BENEFIT ANALYSIS (CBA)

In specifying what may happen in the 21st century, the author makes the key point that EIA requires integrity in government above any other requirement. Based on experience of the EIA system in NSW in particular, I do not believe that the integrity of government and its supporting bureaucracies can be relied upon to ensure satisfactory outcomes in the public interest, particularly where major projects are involved. Nevertheless, Gilpin believes that EIA has proved to be the best approach to decision making and is democratic in character. I would tend to agree with him that currently there is nothing better, but experience has shown that the process has to be reformed in a number of ways as its credibility has been seriously undermined, largely by political factors which are discussed quite early in the book. He contends, however, that in the face of a predetermined outcome bureaucrats have the option of acting with integrity. They may attempt to achieve the best environmental protection in the public interest. They may stand by their judgements, despite ministerial pressure, and suffer the consequences. In my experience that option is rarely, if ever, exercised by bureaucrats.

Quite apart from Gilpin's suggestion of national principles for EIA and the establishment of forms of agreement between governments, there is in my view a pressing need for uniformity of environmental planning and assessment legislation throughout Australia. For example, the federal Environment Protection (Impact of Proposals) Act of 1974 is a much weaker act than the NSW Environmental Planning and Assessment Act (E P & A Act) 1979 and its Regulation (revised) 1994. There is no requirement in the federal act for economic assessment of projects. Despite the key role of cost-benefit analysis (CBA) in EIA methodology, which is well explained by Gilpin, the proponents of the environmentally damaging Third Runway project at Sydney Airport were not obliged to carry out such an analysis of

alternatives. Under the NSW act, this requirement cannot be avoided. However, assuming that the NSW act was adopted throughout Australia, would it work to improve environmental protection?

In contrast to the federal Act, the NSW E P & A Act explicitly requires that there be no false and misleading statements or omission of material matter in EISs. Court challenges could be based on breaches of that requirement. On this point in particular, the EIS and its supplement for the Third Runway at Sydney Kingsford-Smith airport, could have been exposed to challenge as could the lack of economic justification. However it should be realised that even under the State act, the requirement of economic justification can sometimes be got around because cost-benefit analysis can be made selective.

Good examples of this selective usage of CBA are provided by major road projects proposed by the NSW Roads and Traffic Authority in urban areas. For example, illusory road-user benefits in the form of travel time savings during peak periods have been claimed for toll roads such as the M2 and M5 although these roads are embedded in an existing congested network. These major roads have been compared with the effect of a minor upgrade by pretending that they are unconnected to the congested network. Such a major road proposal is determined on the basis of this false economic justification, often seriously degrading the environment in the region through which it passes, while no account is taken of the costs to affected communities.

One can describe this approach to EIA as structured subversion, which reaches into the very heart of government. CBA as practised by the Roads and Traffic Authority has been endorsed by the NSW Treasury[1]. This symbiosis of a bureaucracy with governments can actually drive the EIA process to fulfil a long-term plan which may no longer be relevant. The end result is the distortion of transport planning for an entire city as has happened in the Sydney region. The self interest of bureaucrats and politicians will guarantee the perpetuation of this misuse of the EIA process unless reform is instituted.

COMMISSIONS OF INQUIRY AND THE LAND AND ENVIRONMENT COURT - POLITICAL INTEFERENCE

The Commissions of Inquiry in NSW and panel hearings in Victoria discussed by Gilpin do enable a thorough examination of all aspects of environmental impact assessment but the evidence is not given under oath as in the NSW Land and Environment Court, which operates under Supreme Court rules. A particular example from my own experience with Commissions of Inquiry in NSW brings together a number of factors involved in decision making which have been raised by Gilpin.

A heliport proposed for the central business district (CBD) of Sydney became the subject of a Commission of Inquiry under the NSW Act in 1993 at which I had acted as an expert witness for the Leichhardt Municipal Council, likely to be adversely affected by the proposal. The proponent failed to compare the economic performance of the proposal with the existing heliport at Sydney airport. It was particularly surprising that the Commissioners of Inquiry, charged with the strict

upholding of the Act, allowed the proponent to disregard this key requirement. The Commissioners' findings [2] in favour of the proposal lacked objectivity in a number of other ways to be described below. In 1994, the project then became the subject of a private member's bill, introduced by Ms Sandra Nori (MLA, Port Jackson) and opposing it in the Legislative Assembly of State Parliament. The bill was rejected in the Legislative Council after intense lobbying by the helicopter interests. Once the matter arrived in the political arena, I was subjected to more than one defamatory attack under parliamentary privilege by the NSW Minister for Transport, the Honourable B. G. Baird[3]. While some may consider such defamatory attacks on individuals by politicians as marks of distinction for services to the environment, others may agree with Gilpin, who observed in his treatment of political determinants that "politicians vary enormously in ability and quality.....but their first response is always to think of survival, before seeking martyrdom".

In another case a private operator, assisted by the helicopter lobby, tried to defend the installation of a helipad in a quiet residential area. This proposal was defeated by residents at considerable cost in a Class 1 action in the NSW Land and Environment Court[4]. Attempts by the helicopter lobby to introduce the findings of the Commission of Inquiry were rejected by the Court. The defendant's evidence involved the use of a flawed standard for helicopter noise[5], designed for the benefit of the industry, which incorporates the extraordinary anomaly that in a quiet area more helicopter movements can be permitted than in an area with a noisier background. In my experience, this standard must rank as the outstanding example of scientific nonsense on which to base an environmental decision. The Court may therefore provide an assurance of environmental justice, but we must return briefly to the pervasive influence of political determinants.

That politicians fear the Land and Environment Court is illustrated by statements attributed to the former NSW Premier, the Honourable N. F. Greiner at the 1991 Public Issue Dispute Resolution Conference in Brisbane. Despite the clearly defined legislative requirements for environmental protection, which the Court must uphold, he was reported to have raised doubts in front of the Chief Judge of the Court, Cripps, CJ about the fitness of its judges to uphold these requirements and to make decisions[6].

In the case of the CBD heliport, the Environmental Protection Authority (EPA) was ordered by the government to licence its operation on the basis of the Commissioners' findings although these findings involved poor science, misuse of the results of competent international authorities[7], disregard for the Act and the EPA's own evidence to the Inquiry. Such an outcome adequately supported the views advanced by Professor Peter Cullen at the 1995 ANZAAS congress concerning the generally poor quality of environmental reports[8]. Moreover, the independence of the Office of the NSW Commissioners of Inquiry was brought into question. The different outcome of the Land and Environment Court case indicates what may happen when evidence is given under oath and properly evaluated. Thus it is not surprising that politicians fear the Court.

The matters just discussed suggest other approaches to EIA. Why not subject major proposals involving severe environmental degradation to judicial inquiries?

Why go through the unsatisfactory rigmarole of flawed evidence and political interference?

THE IMPORTANCE OF FREEDOM OF INFORMATION

Gilpin does not mention the significance of a Freedom of Information Act as a vital component in EIA. My first experience of the importance of such an act dates back to the 1970s. The proponents of the Anglo-French Concorde supersonic transport aircraft were seeking landing rights in the United States, making an EIS mandatory. Documents obtained by the US Environmental Defense Fund under the US Freedom of Information Act as amended in 1974, revealed that key information, particularly about the aircraft's extremely high take-off noise level, had been suppressed in the Anglo-French submission to the International Civil Aviation Organisation (ICAO). This information played a critical role in delaying the granting of landing rights in New York for more than two years (1975-1977). By this time the unacceptable noise impact of the aircraft was recognised world-wide and its inferior economic performance compared with that of the latest long-range subsonic aircraft was widely appreciated by airline operators[9,10].

In more recent times, particularly in NSW under the former coalition government (1988-1995), the NSW Freedom of Information Act appeared to become a refuge for self-serving bureaucrats and politicians. For example, in 1990 a Commission of Inquiry had rejected a proposal by the RTA to build a toll road known now as the M2-east[11]. Within about two months after rejection on environmental, economic and social grounds the road was reinstated as a new project by adding a western section to it.

A document obtained in 1993 through freedom of information clearly revealed that the RTA had no intention of accepting the findings of the Commission of Inquiry. It declared that, while it accepted "much of the report of the Commission of Inquiry", it "retains the option to construct an F2". This approach was then cited as "a balanced response to the findings of the Inquiry". The outcome of this humbug was a new EIS and an assessment process consistent with predetermination. The process proved to be nothing more than a costly and elaborate sham.[12]

The above approach by governments in denying information is subtle compared with that used some 370 years earlier. John Tyme[13], a well known town planner in the UK, recorded that King Charles I of England in February/March 1626 declared to the House of Commons at Westminster:

> "I am willing to hear your grievances, as my predecessors have been, but I must let you know that I will not allow any of my servants to be questioned by you.....Your business is to hasten and grant me the supplies I ask or it will be the worse for yourselves".

Political input to the rigged decision making process for the M2 included the results of opinion polls with leading questions. Survey results obtained from the poll which indicated that 75% were in favour of the road, were frequently quoted by politicians as the "will" of the people, overriding any scientific or economic considerations. Moreover, the survey design breached accepted social survey practice which requires that questions be free of bias and that respondents should be

competent to answer them[14]. In nineteen instances the poll tended to elicit support for the road by using phrases such as "lessen traffic congestion", improve "flow of traffic", "speed up traffic", "time savings", "quicker trip" and "ease the traffic locally". The requirement of competence was readily subverted simply by denying respondents the necessary information which would have enabled them to question the claimed advantages of the project. Detailed network analysis of traffic flows in the region confirmed that there would be no substantive congestion relief in the network. It was nevertheless categorically declared by the RTA in the clause 64 report required under the E P & A Regulation, that the road would relieve congestion.[15] The above evidence strongly suggests that the RTA bureaucrats involved must have received political instructions.

The above example is one which confirms that in some cases EIA is a cover story using a veneer of scientific respectability which impresses an uninformed public perhaps bemused by any large scale project. However, it is encouraging to see from Gilpin's examples that such unfavourable outcomes are not inevitable. The Bayer Australia facility at Kurnell, NSW was one particular example. The Commissioners of Inquiry recommended against construction on the grounds of toxic pollution of wetlands, and the damage to the marine ecology of Botany Bay. The Minister did not overturn the recommendation.

WHY ENVIRONMENTAL IMPACT MUST BE PROPERLY DEFINED

In defining "impact", I do not believe that it is necessary to "surrender to its common misuse" as Gilpin states. There is in fact a danger for the community in the misuse of the term. Impact can be defined as the scale and significance of effects to which ecological systems respond. Consider noise impact for example. It is possible to measure aircraft or traffic noise level in decibels and thereby establish the "scale" to which significance can be attached in terms of response to the noise level, such as the percentage of exposed people suffering sleep disturbance. This noise dose-response relationship, specifies impact. It is a two-dimensional quantity, whereas the one-dimensional quantity noise level by itself is an inadequate descriptor of impact.

The danger to the community arises when bureaucracies misrepresent scientific results and at the same time pretend that these flawed results constitute a valid measure of impact as properly defined. For example, if noise level alone is used as a measure of impact, compliance with a particular level can be taken as defining an acceptable impact, despite the fact that a substantial number of people may suffer sleep disturbance and annoyance. Such criteria of "acceptability" can be included in bureaucratic policies. One notorious example with serious implications for people in the Sydney region is the RTA's "Interim" Traffic Noise Policy, which has been developed to endorse as acceptable the noise of heavy vehicles at night, when a road is constructed through formerly quiet areas. Note the manipulative word "Interim". If noise barriers are designed to satisfy the noise level criteria included in the policy, they fail to adequately protect the exposed population against sleep disturbance from heavy vehicles at night. The policy is appealed to by the RTA in every road EIS. The policy was formulated by the RTA by misrepresenting the

work of competent authorities[16] who had objectively reported their findings to the RTA. Their report had drawn widely on international scientific results about sleep disturbance from traffic noise. The public has unfortunately been misled into believing that the policy affords an adequate level of protection. The improper nature of the policy was brought to the attention of the NSW State Parliament during 1995 by the Honourable Ian Cohen (MLC, Greens) during an adjournment speech in the Legislative Council. He gave detailed evidence of misfeasance by the RTA bureaucracy and the role of its consultants, naming those involved. Mr Barry O'Farrell (MLA, Northcott) also raised the matter of the noise policy independently in the Legislative Assembly[17]. The policy provides yet another example of the structured subversion approach to EIA.

ENVIRONMENTAL IMPACT STATEMENTS (EISs)

Gilpin specifies a useful checklist for a good EIS, the most important requirement being the justification of the proposal in economic, social and environmental terms, a requirement that is part of the NSW E. P & A Act and it's Regulation. One particular inclusion of considerable significance is that "the authors of the EIS should be clearly identified". As it stands now, the EIA process involves the invitation of public submissions to comment on the EIS. In turn, the EIS author is able to comment anonymously on the submissions. Anonymous attacks can and have been made on the knowledge and integrity of members of the public who either disagree with the views expressed or uncover evidence of unethical conduct by the anonymous author, especially in cases where the project is predetermined and the anonymous author's evidence has to support the outcome. The Third Runway project provides examples of this practice which I submitted as evidence to the recent Senate Inquiry into aircraft noise[18]. Moreover, the project emphasised that a federal government agency such as DASETT (Department of the Arts, Sport, Environment, Tourism and Territories) was unable to guarantee the integrity of the assessment process, in the face of political determinants. What this means in practice is that proponents are the defacto judges of their own work, however disreputable, and any criticism of it can be effectively suppressed. The EIA process thus failed completely to predict the disastrous effects of the changed operational mode of Sydney airport.

One particular item in Gilpin's list deserves strong endorsement. Scientific disagreement, as distinct from scientific dishonesty that could be eliminated from EISs by truly independent review, can be settled by proper use of probability methods. The late Professor Keith Bullen FRS of The University of Sydney.emphasised the importance of probability for reliable assessment as long ago as 1973. He was criticising a report of the Australian Academy of Science to the Federal Government on the effect of French nuclear explosions in the Pacific. In referring to statements in the report assigning figures of 50-100 for future deaths and disabilities, he stated[19]:

> "By failing to give some indication of the probabilities, the Academy of Science has, I suggest, thus acted unscientifically. It has, moreover, so acted in an area of acute political sensitivity with the attendant risk of making itself a political plaything"..

Gilpin comments on the views of Mr Richard Smyth, a former Director of the NSW Department of Planning, who has identified the main deficiencies of an EIS and argues that 50% of all EISs are effectively useless for decision making. One particular comment of Smyth relates to the provision of biased information. There is a subset of sins of this type which one could term "pseudo-objectivity". This form of bias involves the proponent including some adverse evidence but omitting the most adverse. It often requires a great deal of knowledge and experience to get to the truth of the matter. I find difficulty in coming to terms with Gilpin's recommendations for increasing objectivity and reducing subjectivity in assessment as defined in his checklist 2.5, especially where predetermination of a major proposal with significant impact is involved.

REFORM OF THE EIA PROCESS

Gilpin mentions the possibility of ministerial corruption in order to attract private investment and cites EIA as a method which avoids the prospect of Ministers bypassing "existing safeguards and public participation". Whether corruption may exist or not, I have shown by examples that the EIA process can be readily subverted and reduced to the level of an elaborate sham in favour of vested interests. Reform of the process is therefore long overdue.

Reform should involve a number of measures, including changes to freedom of information legislation at state and federal level and to the defamation laws to assist exposure of improper practice and corruption. Changes to the environmental acts should be made so that one act applies throughout Australia and it should be drafted in such a way as to reduce the risk of subversion. Judicial inquiries should be introduced for major projects with evidence given by affidavit and subject to cross-examination. Overall, there must vigilance by a properly educated public with particular attention paid to the conduct of politicians.

NOTES AND REFERENCES

1. Guidelines for Economic Appraisal., *NSW Treasury Technical Paper.* Revised Edition. January. 1990 The NSW Treasury endorsement involved the inclusion in its guidelines of a cost-benefit analysis for the Gore Hill freeway. It was carried out by the consultant Travers Morgan Pty Ltd (November 1986. Ref. 878) for the DMR (now the RTA).
2. Commissioners of Inquiry for Environment and Planning (William Simpson, Chairman.), *Proposed Heliport for the Central Business District of Sydney at Pier 8, Pyrmont.* July. 1993,
3. NSW Parliamentary Debates (Hansard) *Sydney Heliport Bill*, 3 March 1994., p. 169
4. Land and Environment Court of NSW , *Record of Hearing: Inshaw v The Council of Hornsby and another. No. 10640 of 1993.*, 1994. Coram : Bannon, J. Economic analysis of the Galston helipad referred to in the text, was carried out on behalf of the plaintiff by comparing it with another nearby public helipad. A highly conservative value of benefit-to-cost ratio of less than 0.5 was estimated based on the minimum disamenity costs to the residents (conveyancing costs for relocation) while their house values were considered as unaltered.
5. Standards Australia, Australian Standard AS 2363. *Acoustics - Assessment of Noise from Helicopter Landing Sites.*, 1990. The anomaly referred to was revealed by analysis of the helicopter noise measurements carried out on behalf of the defendant.
6. 'Land Court Faces Uncertain Future.', *The Sydney Morning Herald*, 20 February, 1991. Statements attributed to the Honourable N. F. Greiner.
7. J.B. Ollerhead, *Past and Present UK Research on Aircraft Noise Effects.* Proceedings of Noise-Con

93. 1993 National Conference on Noise Control Engineering., 1993. In terms of annoyance Ollerhead showed that a fleet of helicopters was generally perceived to be noisier by about 10 dB than a fleet of fixed wing aircraft where the actual measured noise levels were the same. The author of the paper referred to is Head of Environmental Noise and Analysis, UK Civil Aviation Authority. His finding was arbitrarily reduced to 0.5 dB in the Commissioner's report, which had the effect of allowing a much larger fleet of helicopters to fly to ensure commercial viability. This summary disposal of evidence unhelpful to a proponent, and the lack of a cost-benefit analysis is consistent with the predetermination of the project.

8. P. Cullen, 'Quality Assurance in Environmental Research.', 64th ANZAAS Congress, Newcastle. Science for Environmental Decision Making. September 24 - 27, 1995
9. J.L. Goldberg, 'Supersonic Transports - Some Environmental and Economic Aspects of Their Operation.', *Search* 6, 4, April 1975. This paper revealed the cover up of Concorde noise levels in the Anglo-French submission to the International Civil Aviation Organisation (ICAO).
10. J.L. Goldberg, 'Environmental Impact and the Importance of a Freedom of Information Act.', Environmental Engineering Conference, The Institution of Engineers, Australia. Sydney 12-14 July 1978. This paper was written to demonstrate the international interaction of political, technical and legal factors in environmental decision making. It contains references to key documents including Hansard (Commons and Lords), US Congressional Record (94 th Congress) and the record of the US Court of Appeals for the second circuit (1977) in the case of *British Airways Board and Compagnie Nationale Air France v The Port Authority of New York and New Jersey,* an action initiated to obtain landing rights in New York. The campaign against Concorde involved groups and individuals in the United Kingdom, USA, Sweden and Australia, who collaborated with each other over a long period by exchange of information which discredited Anglo-French claims of environmental acceptability and economic performance. An outstanding overall contribution to all aspects of environmental concern, such as sonic boom, airport noise, cosmic radiation risk at high altitude as well as aviation safety, was made by Dr Bo Lundberg, former Director-General of the Aeronautical Institute of Sweden (*Search,* Vol.4 No.9, September 1973). Mr Richard Wiggs, Secretary of the UK Anti-Concorde Project, a coalition of environmentalists in the UK which included academics such as the Cavendish Professor of Physics at Cambridge, Sir Neville Mott, proved to be a highly effective organisation for gathering, interpreting and distributing information. As noted by Kenneth Owens (*New Scientist,* 14 October 1982), the earlier United States SST project did not survive "when fully exposed to hard economic and scientific analysis and later to general public opinion". Owens considered its defeat in Congress during March 1971 as "the environmentalists' most dramatic victory.....the decision sent out powerful and enduring shockwaves".
11. Commissioners of Inquiry for Environment and Planning (John Woodward Chairman), *A Proposed Expressway from Pennant Hills Road, Beecroft to Pittwater Road, Ryde Known as the F2 Stage 1.* July, 1990. . This report rejected the proposal on environmental, economic and social grounds. The Inquiry lasted eight months, received 829 submissions from 301 parties of which 52 were expert witnesses from a wide range of disciplines. It concluded specifically that there would be no peak period congestion relief in the network, nor was the road justified as an essential link to the North West sector based on demographic projections of population growth in the sector and employment growth on the North Shore. The then Transport Minister Baird attacked the findings and was quoted as saying that the Commission had consulted only *" small group of people"* opposed to the road , and that three out of four residents supported its construction (*The Sydney Morning Herald,* 21 August, 1990). The latter claim was based on the rigged opinion poll described in the main text. In the *Western Sydney Business Review*, 15 October 1990, the former NSW Premier Greiner was reported as saying that the Commissioners' Report was ".....just totally one-sided and not an intellectually rigorous approach".
12. J.L. Goldberg, 'The F2 Castlereagh Expressway Affair-A Case for Reform of the NSW Roads and Traffic Authority.' *Urban Policy and Research.*, 11, 3, September. 1993. The particular document referred is cited in this paper . It was a memorandum from the RTA Sydney Region Director, R. F. Morris to the then Minister for Roads, Wal Murray.
13. The survey referred to in the text was entitled *"Attitudes to the Castlereagh Freeway"*. It was commissioned by the RTA. In addition to built-in bias, the survey design did not conform to the requirement that the respondents had to be competent to respond. See for example, E. R. Babbie, *The Practice of Social Research* (Wadsworth, CA.) pages 151-153.

14. J. Tyme, *Motorways versus Democracy* , MacMillan, 1978. Chapter 6 of this book discusses the corruption of government in the UK in connection with road and motorway proposals.
15. NSW Roads and Traffic Authority, *Northwest Transport Link. Environment Impact Assessment Report.*, 1993. At page 211, it is explicitly stated that " Not only will the expressway reduce future congestion, but it will reduce existing congestion". Moreover, detailed analysis of present and future traffic flows in the region during the morning two hour AM peak period, reveals insignificant changes in travel speed in the network with the M2 inserted, compared to that obtained from a minimum upgrade of the existing network. This result is largely independent of the type of road linked to the M2, and is not consistent with claims of congestion relief. See Denis Johnston and Associates (1991) *Transport and Traffic Analysis*. Appendix F. This key volume was issued separately as a working paper for the EIS.
16. A.L. Brown, and S. Rutherford, *Criteria for the Control of Night-time Road Traffic Noise: Directions from the Current Research Literature.*, Proceedings of WESTPRAC IV91, Brisbane, 26-28 November. 1991
17. NSW Parliamentary Debates (Hansard) *Traffic Noise*, page 26. *Roads and Traffic Authority -Traffic Noise*, pp. 48-49. 13 November 1995. *M2 Motorway Noise Barrier*, p. 68, 16 November 1995.
18. Report of the Senate Select Committee on Aircraft Noise in Sydney, *Falling on Deaf Ears?* , 1995. A particular example of unethical conduct engaged in by EIS consultants when compromised by a predetermined outcome is described and analysed in detail in a collection of documents which has been presented to the NSW Mitchell Library (call no. Q363.742 0994/2). It includes affidavits filed in the Federal Court in the case of Councils v FAC and Ors, which was supposed to be heard in 1992, but the case did not proceed.
19. K.E. Bullen, 'Should Scientists Disagree?', The Sydney Morning Herald. 24 May 1973. Bullen was writing in response to a letter published in the Herald on 18 May by Ann Moyal who raised the issue of divided scientific opinion and inconclusive evidence.