Approaches to Environmental Noise Policy in Australia

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ABSTRACT: Since the 1970s there has been comprehensive noise legislation in most of the States of Australia. Its goal in all cases has been to provide adequate means of controlling unacceptable noise. However significant variations in State approaches to noise control are evident within the details of this noise legislation and associated policy. An international study of the effectiveness of environmental noise policies was undertaken by the Organisation for Economic Co-operation and Development (OECD) in the late 1980s. Eight points were identified in order to prevent further deterioration of the acoustic environment. In this paper Australian approaches to environmental noise policy are examined in the light of the OECD recommendations.

1. INTRODUCTION

In the late 1980s the Organisation for Economic Co-operation and Development (OECD) undertook an international study to analyse trends in noise exposure and assess the effectiveness of noise abatement policies. Australia was one of the six countries investigated in detail. This study [1] concluded that to prevent further deterioration of the acoustic environment noise abatement policies need to be strengthened. Specifically it recommended that the countries should:

- develop a coherent national strategy;
- coordinate this policy between national, regional and local authorities;
- provide the resources needed for proper enforcement of measures adopted;
- monitor policy implementation;
- generalise the use of economic and non economic incentives;
- take vigorous steps to change the behaviour of the public and of decision-makers;
- integrate noise concerns in the development of transport policies and traffic management policies; and
- in the longer term introduce stricter emission limits for the noisiest vehicles and equipment.

In this paper the approaches to environmental noise legislation in Australia will be examined with a view to assessing if these elements have been taken into consideration in Australia.

2. ENVIRONMENTAL LEGISLATION IN AUSTRALIA

Australia is a Federation of States and Territories (hence "State" refers to "State and Territory") and there are three levels of Government: Federal, State and Local. While there had been some means of controlling clearly excessive noise, it was not until the 1970s that comprehensive noise legislation was introduced by most of the States of Australia. The goal of the legislation is to provide adequate means of controlling unacceptable noise. This legislation typically sets limits for various noise generating activities and mechanisms for enforcement.

Each of the States has either a Department or Agency which is responsible for the development and implementation of environmental legislation as shown in Table 1. While the need to control unacceptable noise is common to every State's legislation, the fact that the legislation has been developed independently has led to the emergence of a range of noise control approaches among the States. Within the legislation itself there are significant differences in the detail embodied in definitions, criteria and procedures.

In the 1970s these Acts were often specific to noise, eg Noise Control Act for NSW. In the light of approximately twenty years of experience in implementing the legislation, most States either have, or are in the process of, introducing new legislation in the 1990s. The current trend is to have an integrated environmental legislation to cover all the aspects of the environment. This is supplemented by policies or regulations that address specific environmental media. These policies or regulations can be included as sub-ordinate

regulation under the relevant Act or as separate non mandatory documents. There is always a considerable time lag between the decision to introduce a new Act and its actual passing by the Parliament. In some States the introduction of these policies requires community consultation, further delaying the passing of the Act and the relevant noise policy.

Table 1. Summary of Environmental Departments/Agencies and Acts

State	Department/Agency *	Act
Australian Capital Territory (ACT)	Office of the Environment within the Environment and Land Bureau	Noise Control Act 1988
New South Wales (NSW)	Environment Protection Authority	Noise Control Act
Victoria (Vic)	Environment Protection Authority within the Department of Conservation and Environment	Environment Protection Act 1970
Tasmania (Tas)	Environment Tasmania within the Department of Environment and Land Management	Environmental Management and Pollution Control Act 1994
South Australia (SA)	Environment Protection Authority within the Department of Environment and Natural Resources	Environmental Protection Act 1993
Western Australia (WA)	Department of Environmental Protection Authority	Environmental Protection Act 1986
Northern Territory (NT)	Environment Protection Division of the Department of Lands, Planning and Environment	Summary Offences Act 1992**
Queensland (Qld)	Division of Environment within the Department of Environment	Environmental Protection Act 1994

*It should be noted that the structure of Departments can be changed quite readily by the Government.

** The Summary Offences Act is administered by the Police rather than the Department of Lands, Planning and Environment.

At the Federal Level, the Environmental Protection Agency is within the Department of Environment Sport and Territories and its gaol is to work with all levels of government, business and the community on nationwide solutions to environmental problems and to fulfil international environment protection obligations.

A milestone in the quest to achieve a coherent national strategy was the Inter-governmental Agreement of 1992 [2]. This stated that there would be a cooperative national approach to the environment. In the section on National Environmental Protection Measures, it was agreed that there should be uniformity for noise related to protecting amenity where variations in measures would have an adverse effect on national markets for goods and services. It also endorsed national motor vehicle emission and noise standards. This meant that control for community and industrial noise, while attempting to maintain a cooperative national approach, was the responsibility for each State government. While the Noise Sections of the various State Governments have informally held discussions on the most effective manner to achieve this cooperative national approach, to this time no formal body or committee has been established.

3. COMPONENTS OF POLICY

Industrial Noise

The basic method for assessing offensive or intrusive noise involves measuring (or predicting) the noise level, making a correction for the nature of the noise, and comparing this value with criteria. However while this basic method is applied throughout Australia differences arise in the interpretation of each of these components.

In four of the States, the descriptor required for the measurement of the noise itself is the L_{A10}, the level exceeded for 10% of the time period. This descriptor is used to describe the average of the maximum levels. In other States the L_{Aeq}, the equivalent energy level, is used instead.

The corrections for the character of the noise are mostly in accordance with the relevant sections of the Australian Standard, AS1055 [3].

For the establishment of acceptable criteria there are two options. One is to define noise limits based on the type of area and time of day. The other is to use a relative method based on the background noise level in the area. Both these methods are used around Australia. The greatest difference between the approaches of the various States is in the establishment of the criteria for acceptability, as shown in Table 2.

Table 2. Main descriptor for environmental noise assessments

State	Descriptor for Noise	Acceptable Criteria	Time periods
ACT	L_{A10}	L_{A90} +5 dB(A)	0700-2200
		L_{A90} +0 dB(A)	2200-0700
NSW	L_{A10}	L_{A90} +5 dB(A)	
Vic	L_{Aeq}	Noise Limit	
Tas	L_{Aeq}	L_{A90} +5 dB(A)	
SA	L_{Aeq}	Noise Limit & L_{A95} +5	
WA	L_{A10}	Noise Limit	
NT	no objective criterion	no objective criterion	
Qld	L_{A10}	L_{A90} +5 dB(A)*	0700-2200
		L_{A90} +3 dB(A)	2200-0700

* The criteria for Qld are from the Draft Environmental Protection (Noise) Policy of 1996.

The various States justify the need for different criteria on the basis of the characteristics of the area and the expectations of the population. This lack of consistency can cause difficulties for industry. It is quite feasible for an operation that fully meets the requirements in one State to be judged to produce excessive noise in a similar area in another State. It also has the potential for cross border disputes where the activity complies with all the criteria one side of the border yet can be considered as producing excessive noise on the other. There is a move towards use of the L_{Aeq}, rather than the L_{A10}, as descriptors for the noise. The L_{Aeq} has been strongly

supported in discussions between some State authorities and acoustical consultants. The adoption of L_{Aeq} by all of the States would be a worthwhile step towards uniform noise assessment policy in Australia. The Australian standard AS1055 [3] is in the process of revision, and changes in the descriptors or the assessment methods may also lead to changes in the methods adopted by the States.

Specific Noise Sources

In addition to the criteria for general industrial noise, most of the States have criteria for specific noise sources such as entertainment noise, shooting ranges, standby generators etc. NSW was the first State to produce a comprehensive manual [4] specifying the assessment and criteria for a range of specific noise sources and this has been used widely as a guideline.

Transportation Noise

The Federal Government is responsible for controlling aircraft noise and setting noise emission limits for new motor vehicles. For all other aspects of transportation noise the control is at the State level. A thorough environmental impact/effects statement is required under the Environmental or Planning Legislation before any new large construction can proceed. This generally includes the setting of design criteria, an assessment of potential noise impact and measures for its mitigation. Once the process has been completed, should there be any complaints, it is up to the appropriate authority to show that the design criteria have been met or where this is not possible, for technical or economic reasons, that best management practices have been implemented. It is not normal for the environmental agency to become involved at this latter stage.

In recent years road traffic noise has been identified as the most prolific form of noise pollution throughout Australia. The growing community outrage to noise from proposed new and upgraded roads has also demonstrated the current road traffic noise design criteria do not provide adequate noise protection. In recognition of these facts, a number of States are developing, in the process of, or are intending to, develop more stringent noise goals for road traffic noise.

4. MONITORING

Monitoring the effectiveness of existing policies can provide valuable input for the development of new policy. A study of the effectiveness of noise abatement policies in Australia in the 1980s [5], found that there had been no real assessment of the effectiveness of policies in terms of the noise reductions achieved or the costs. This is partly because the goals for the policies are considered to be met if the noise criteria are achieved. The Draft Policy for Queensland [6] does include clearly stated noise management objectives:

a) by 1 December 1999 - completing an assessment of the ambient acoustic environment ...; and
b) by 1 March 2002 - achieving an ambient acoustic environment of 55dB(A) or less for more than 60 per cent of Queensland's population living in residential areas; and
c) by 1 March 2010 - achieving an ambient acoustic environment of 55dB(A) or less for more than 90 per cent of Queensland's population living in residential areas

The clear statement of these objectives will enable monitoring of the effectiveness of the policy.

The Federal Government has established a national State of the Environment(SoE) reporting program to fulfil its requirement as a member nation of the OECD. Most States and some Local governments also produce their own SoE reports, some obligated by legislation to do so. One of the aims of SoE reporting is to generate an accurate picture of environmental trends to monitor the effect of policies. To date these reports show that the regulations have been enforced but do not address the issue of effectiveness. The policy is considered effective if there have been few complaints and few problems. If parts of the regulations are found to be difficult to implement or inappropriate, then changes are made.

Some State and Local governments are now considering undertaking ambient noise monitoring programs. If these programs proceed in a coordinated manner and can be maintained in years to come, it should be possible to gauge policy effectiveness at the National level. It would also allow assessment of the effectiveness of the noise abatement strategies implemented by the various States.

5. ENFORCEMENT, INCENTIVES AND PUBLIC SUPPORT

Enforcement is considered to be an integral part of noise abatement policies in all the States. Increased public pressure for adequate control of environmental pollutants has ensured that the agencies enforce the policies. More emphasis has been placed on industry self monitoring with many environmental agencies taking on an environmental auditing role. As legislation is reviewed, maximum penalties for breaches have been increased and the methods for application streamlined, leaving less opportunity for disputes and appeals.

Incentives have not been important aspects of environmental noise policy in Australia. However incentive based schemes are now being considered and implemented in a broader environmental approach, some having potential to influence noise abatement strategies of industry. Some incentive based strategies emerging include:

a) load based licensing, where companies are required to pay licence fees based upon total pollution emissions;
b) grants available for environmental improvement - which can include noise;
c) industries seen to be environmentally well managed can be rewarded by reduced licence fees, extended licences and less frequent reporting requirements.

The extension of these incentives into noise policy is limited by the current approach to noise control. For example, in many States noise is not licensed and therefore incentives based on reduced licence fees are not applicable.

All of the States have promotional and educational material which is available to the public. Coupled with media coverage of some disputes, there has been an increasing awareness by the public of rights under the policies. The increased amount of public consultation for many issues associated with the environment and with planning have also helped to increase support for environmental control issues. This has undoubtedly had an effect on the actions of the public and of the decision-makers but this effect cannot be quantified.

6. CONCLUSION

The OECD study on environmental noise policies[1], carefully identified the elements which are necessary to prevent further deterioration of the acoustic environment. Of the eight points, six are specifically relevant to environmental agencies. The other two relate to transportation noise which is the responsibility of transport or road construction agencies. Although guidelines and goals for transportation noise can be specified by the environmental agency, it is often other agencies which are responsible for its implementation.

There is some commonality between the environmental noise legislation for each of the States and a coherent national strategy is emerging with the introduction of integrated environmental legislation. However within the details of the policy and regulations there is a lack of uniformity and to date there is no mechanism place to address these anomalies. While there may be some justification for local specific differences it is hard to understand why the basic descriptors and the criteria differ from State to State.

Monitoring the effectiveness of the policy is still not an integral part of policy review and development. With the increased emphasis on SoE reporting, there is potential for monitoring to be conducted. However this will depend on the allocation of resources to this process. Currently, as long as the criteria have been met it is assumed that the policy has been effective. There are few defined goals for the policies except for lack of complaints.

The use of incentives to reduce environmental pollutants is emerging. However their application in controlling noise is extremely limited at present. Promotional material, public consultation and media coverage have all lead to an increased awareness of noise issues which have hopefully had effects on the actions of the public and decision makers.

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