

TOP TEN ISSUES FOR ACOUSTICS IN AUSTRALIA

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1.0 INTRODUCTION

There is a real concern among the members of the Australian Acoustical Society (AAS) about the lack of support at all levels of government for research and education in acoustics in Australia. This issue has been raised in the President's editorial in the journal (*Acoustics Australia*, 30(2) p47 2002). While there is general agreement that there is a problem, there has been no clear plan of actions that can be taken by the Society to redress the damage that has already been done and to forge an expanding role for acoustics in Australia in the future.

The aim of this project, supported by an educational grant from the AAS, was to identify the "Top Ten" issues of concern to the acoustics community and the directions that could be pursued to redress the problems identified. The responsibilities for actions lie with the AAS Management and the individual members of the AAS. Assistance can be sought via the Federation of Australian Scientific and Technological Societies (FASTS) which is a lobby group with strong links into all levels of government.

The draft of the full report with suggested actions was available for discussion at the Future Directions Workshop held in late May 2003. Decisions on the actions to be implemented were made at that workshop and were included in the report. The full report is available from the AAS web page, www.acoustics.asn.au. This paper summarises the background and lists the actions which the Society will be implementing.

2.0 BACKGROUND

Acoustics covers a very wide range and the membership of the AAS is certainly diverse. The areas of interest for the members of the AAS cover all aspects of sound and vibration. Members of the society can be self employed or work for the private or the public sector. The education background of the members includes engineering, science, electronics, architecture, building, psychology, physiology, music, etc.

The AAS comprises over 400 members within Divisions in five states. Management of the AAS is at the state level

with Divisional Committees and at the federal level with Council. The only person in receipt of payment for participation in the society management is the General Secretary. The activities of the Society include state meetings, national annual conference, participation in international activities and production of a journal. A number of grades of membership are available. The Society maintains a web page www.acoustics.asn.au.

The AAS is a member of a number of other organisations including FASTS, which represents and lobbies government on behalf of some 60,000 scientists and technologists from over 50 member societies in Australia. FASTS produces a Top Ten list of issues annually and this concept formed the basis of the current study to identify the Top Ten issues for Acoustics in Australia

3.0 SUMMARY OF RESPONSES

It was decided to use an open-ended survey targeted at a representative focus group to formulate the first top ten issues listing. The survey simply asked each of 13 representatives for their top ten issues in acoustics. Some responded with their own comments while some consulted with their colleagues. Not all provided ten issues and most did not wish to rank-order their issues. As anticipated many of the responses were biased towards the area of particular interest to the respondent. However there were some issues that, although stated in different ways, were common to many responses. All the respondents provided at least three issues, most provided close to ten and some provided more than ten. Some also included comments by way of guidance for actions that could be taken. The following attempts to categorise the responses with a view to identifying the top ten and thence the action plans.

Public face for acoustics

A 'public face' for acoustics in Australia is required. An effective presence would be ready to actively participate whenever there were opportunities to counter the concerns about the future of acoustics, the lack of educational opportunities, the promulgation of misleading information, the reduction in expertise in publicly funded organisations and

agencies etc. It could also be pro-active to highlight the achievements of Australian acousticians and the opportunities for successful and satisfying careers in acoustics.

Future of Acoustics

Many expressed concerns about the future of acoustics in Australia in particular because of the reduction of Government funding to research organisations, to universities and to state and federal agencies.

Staff reductions mean that research organisations and government agencies are not employing and training the young people to be able to maintain, let alone increase, the high reputation that has been achieved by Australian acousticians across a wide range of fields. This means the expertise will only be in those areas which are able to attract considerable funding from the private sector.

The requirement to generate funding has led to the closing and sale of government, and hence independent, acoustic test facilities. The CSIRO acoustic facilities in Sydney are to be demolished. The test facilities at CSIRO in Melbourne will only be supported as long as there is an income stream from commercial testing. The sale of the National Acoustic Laboratory includes a lease-back arrangement but this will lead to greater pressure for cost recovery and could lead to the demolition of the facilities. These are outstanding facilities which include the largest and quietest anechoic chamber in Australia and the reverberations rooms with the highest background room flanking attenuation.

With no reliable and continuing source of external funding for public interest research in acoustics there is an increasing reliance on overseas findings which may not be directly applicable. For example in the environmental noise area there is a need for research which can be fed into the policy development process for important community concerns such as sleep disturbance, low frequency noise, transport noise etc. There is a need for collaborative research where the acoustics input is just one part of the team.

Education

At the tertiary level there is a lack of recognition of the discipline of acoustics and in particular noise and vibration. Funding bodies, like ARC and DEST, do not have a category code for this area. Encouragement in the form of awards for outstanding student research projects and the publicity of achievements is a possible way to increase the profile of acoustics in the academic environment as well as in the community.

Promotion of the opportunities for a career in acoustics is required at the secondary and tertiary level. An up-to-date brochure highlighting the career opportunities is required.

There are many opportunities for employment in the private sector and there is a lack of graduates with some knowledge of acoustics for these positions. A variety of flexible courses are desperately needed. These include tertiary courses in acoustics providing comprehensive education at both the professional and technical level, acoustics subjects as part of other relevant courses, and intensive short courses to provide improved knowledge and skills for those entering the profession as well as refreshers for

more experienced acousticians.

At the public level there is a need to provide better information on many aspects of acoustics so that public discussion on the topic is well informed and exaggerated claims are countered. Emotional issues such as the effects of noise on people, animals and sea life often appear in the media and there must be readily available means to ensure that replies from knowledgeable researchers are provided.

Information provided to the public on issues such as environmental noise is confusing due to the range of indices used for assessment. Guidance should be provided to the public to assist them to understand and interpret such information.

Professional issues

The AAS has a code of ethics and the implications of this code should be discussed and reinforced amongst the membership.

The AAS has strict guidelines for full membership but this is not the same as accreditation or certification that the member has a level of competency in a particular area. State and Federal agencies require some means to be sure that consultants have the required competencies.

There is inadequate policing of performance claims on products and some technical data is presented but not based on Australian or internationally accepted standards. Legislative requirements for specifications on noise and vibration are not uniformly complied with.

The opportunities for careers in acoustics should be promoted and the profile of the profession increased.

Professional indemnity insurance is an increasing issue for any acoustician doing consulting work. The availability of insurance, in particular for those undertaking a small number of consultancies, is a problem. The extent of liability is also an issue of concern for those who may be part of a larger team such as in building or road construction. Acoustics is bundled with other higher risk groups and so the premiums are unnecessarily high.

The adversarial role that is required of expert witnesses under the current legal system lowers the status of the profession.

Codes and standards in Acoustics

The delay in the proposed changes to the Building Code of Australia reflects poorly on acoustics in Australia. Most working in the area agree that the current standard is inadequate and agree with the proposed changes. Until the Code has been changed the inadequate performance meets the criteria.

The variation in environmental noise regulations and codes across all states adds to the confusion in the community and the various agencies need strong encouragement to come to agreement.

There is an urgent need for calibration and traceability of sonar systems and of ultrasound instruments used in medicine. The former is of great financial import due to the amount of business in Australia in this area and the latter because of the great potential for damage.

The applicability of International Codes and in particular EU directives needs to be examined. The acceptance of such guides may save duplication of research but this should only follow careful consideration of the local conditions.

There needs to be support for codes aimed at minimising the damage on humans from vibration, both hand arm, from use of tools and on the whole body.

Acoustical Society

The Society needs to consider all possibilities to increase membership. The target group should be the youth who should be encouraged to join and also to participate in all aspects of the society including the committees.

The Society needs to provide more professional support for members. This can include providing a good communication network, maintaining an adequate database, developing efficient methods to support members encountering difficulties etc. A survey is required to assess the needs and expectations of the current membership.

The methods of communicating with the membership should be examined and updated. The format of the state

technical meetings, the national conferences and the journal of the Society all need to be examined to ascertain relevance and effectiveness.

While there is a range of subject areas in acoustics, the high numbers in the noise related topics means that less attention is paid to those areas with smaller numbers. The establishment of specialist subgroups could assist to counter this.

4.0 'TOP TEN' ISSUES

The assessment of the responses led to a listing of the Top Ten issues with suggested options for actions by the AAS. This draft was discussed at the Future Directions Workshop, and agreement on actions was obtained and endorsed at the following Council meeting. The listing and the actions are shown in Table 1.

Table 1 Actions on Top Ten Issues for Acoustics in 2003

	Issues	Agreed Actions
1	Public face for Acoustics	An Occasional Paper be prepared highlighting the problems and possible solutions facing acoustics in Australia and so deal with many of the top ten issues. This paper to be used to lobby government and to be launched with support of FASTS. Paper to be prepared by Burgess to be used during the Meet the Politicians Day organised by FASTS in October 2003. A member survey be undertaken with results compiled by end of 2003. The current President, Ken Mikl, be identified as the primary media contact for the AAS. Procedure for promoting this to the media and preparing media policy document to be discussed with FASTS.
2	Educate the youth on acoustics	Subcommittee convened by Byron Martin to prepare list of courses on acoustics in Australia and the list to be placed on the web. Three senior academics be encouraged to prepare a submission for the creation of a Research Field Discipline and Subject Code (RFCD) for Noise and Vibration.
3	Improve the education of those in acoustics	It was agreed that short courses on all aspects of acoustics should be encouraged but no specific actions from AAS at this time.
4	Retain and expand publicly funded acoustic facilities	The draft letter tabled at the workshop should be used as a basis for lobbying government. Ken Mikl and Neil Gross to liaise with FASTS on the best way to proceed.
5	Retain acoustic expertise in publicly funded organisations and agencies	These issues would feature in the Occasional Paper described above
6	Retain reputation of profession	A formal process of accreditation was considered beyond the scope of the AAS at this time. A "self regulated" listing to be implemented based on members selecting their areas of competency and relying on them abiding by the Code of Ethics. The listing to be updated annually and available from the web.
7	Grow the AAS	Member survey to include request for details of potential members. President's editorial in Acoustics Australia to urge members to encourage others to join the AAS.
8	Involve all members	Survey to ascertain needs of members and AAS to act upon responses. AAS to work in cooperation with other relevant organisations. As a first step AAS to agree to arrange 2 sessions at the Aust Institute of Physics Congress in Canberra in 2005. Burgess to liaise with AIP.
9	Professional support – legal, insurance etc	The Australian Association of Acoustical Consultants (AAAC) has some capabilities to provide assistance. AAAC be urged to promote itself in Acoustics Australia.
10	Encourage research	No specific actions – to be referred to in the Occasional Paper.

5.0 CONCLUSION

A study has been undertaken to identify the top ten issues of concern to the acoustics community in Australia at this time. Based on the responses from key stakeholders within the acoustic fraternity a consolidated list of key issues has been developed. Directions for actions to redress the problems identified and that utilise the resources available to the AAS were used as the basis for discussions at the Future Directions Workshop held by the AAS. Selected actions were agreed to at that workshop and the Council committed to implementation.

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Request for comments

Comments on the issues and the actions outlined in this paper are welcomed. AcousticsAustralia@acoustics.asn.au

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