

NOISE/NEWS

INTERNATIONAL

Volume 16, Number 2
2008 June

*A quarterly news magazine
with an Internet supplement published
by I-INCE and INCE/USA*

INTER-NOISE 09
Announcement and Call for Papers

Istanbul Workshop II

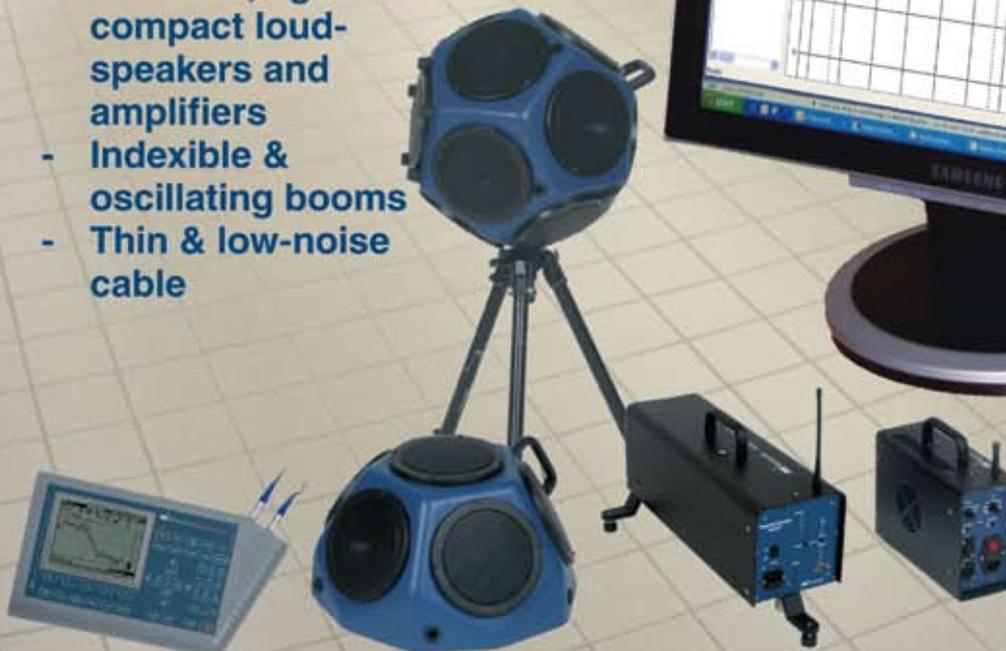
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Brazilian Acoustical Society



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Volume 16, Number 2

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Canadian War Museum. Courtesy of Ottawa Tourism.

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NOISE/NEWS

INTERNATIONAL

The printed version of Noise/News International (NNI) and its Internet supplement are published jointly by the International Institute of Noise Control Engineering (I-INCE) and the Institute of Noise Control Engineering of the USA (INCE/USA).

I-INCE

The International Institute of Noise Control Engineering (I-INCE) is a worldwide consortium of societies concerned with noise control and acoustics. I-INCE, chartered in Zürich, Switzerland, is the sponsor of the INTER-NOISE Series of International Congresses on Noise Control Engineering, and, with the Institute of Noise Control Engineering of the USA, publishes this quarterly magazine and its Internet supplement. I-INCE has an active program of technical initiatives, which are described in the Internet supplement to NNI. I-INCE currently has 46 Member Societies in 39 countries.

INCE/USA

The Institute of Noise Control Engineering of the USA (INCE/USA) is a non-profit professional organization incorporated in Washington, D.C., USA. The primary purpose of the Institute is to promote engineering solutions to environmental noise problems. INCE/USA publishes the technical journal, *Noise Control Engineering Journal*, and, with I-INCE publishes this quarterly magazine and its Internet supplement. INCE/USA sponsors the NOISE-CON series of national conferences on noise control engineering and the INTER-NOISE Congress when it is held in North America. INCE/USA Members are professionals in the field of noise control engineering, and many offer consulting services in noise control. Any persons interested in noise control may become an Associate of INCE/USA and receive both this magazine and *Noise Control Engineering Journal*.

NNI Internet Supplement

www.noiseneewsinternational.net

- Links to the home pages of I-INCE and INCE/USA
- Abstracts of feature articles in the printed version
- Directory of the Member Societies of I-INCE with links, where available, to the Member Society Profiles and home pages
- Links to I-INCE Technical Initiatives
- Calendar of meetings related to noise—worldwide
- Links, where available, to NNI advertisers
- Links to news related to the development of standards
- Link to an article “Surf the ‘Net for News on Noise,” which contains links to noise-related sites—worldwide

Our Future

Last year I took part in the Noise Policy Workshop at Noise-Con 2007 in Reno organized by Bill Lang and George Maling, which was focused on education. To me, the best type of noise control educational package involves both classes and a research project with a sponsor—ideally one who is also involved in synergistic projects at their company. It is hard to beat the engineers in industry, engineering professor, and graduate student team approach. The student benefits from having to understand the needs of the sponsor, learning to communicate his or her technical findings, and also by being involved in refining or redefining the project goals and work plan to reflect new understanding gained during the research. These experiences are an added bonus beyond the fundamental theory, computational methodologies and experimental expertise that they gain through their classes and working on the technical details of the project.

INCE's conferences also provide opportunities for students to discuss their research with practitioners. Recently INCE/USA has recognized the need to facilitate these interactions and now organizes student lunch events at their conferences. Some are focused on a particular issue, and others are more informal, making them a great place to make connections that may ultimately lead to hiring or other collaborations. These sessions also send a message that INCE welcomes students and that we "older guys" recognize that they are the future of the profession. The sessions help the students become more integrated into the noise control community, learn about board certification and noise policy and its importance for practicing noise control engineers.

But, how do these students make it to the conference? What was their journey into higher education and how did they come to do research in noise control? Most US acoustics graduate students are funded on research grants. While interest is a factor in research project selection,

having paid or taken out loans to cover the cost of their undergraduate studies, they choose projects that are funded. Just like a good engineer, they find a practical solution: a project with funding that is of interest to them. If we need a bigger pool of noise control experts, which I think, as I am surrounded by noisy machines, HVAC systems, etc., must be the case, there has to be funding for noise control research projects to attract students into studying noise control. Each one of us has a role in ensuring that happens, whether it be directly funding a project, joining university consortia, participating in proposals, championing theirs and other people's proposals as they pass through the various levels of an organization for approval, planting seeds in people's minds that University-Industry research partnerships are a good idea, and always highlighting the benefits of such interactions.

Board certification is a formal acknowledgment of both educational accomplishments, reflected in a demonstrated understanding of the theory of noise control, and the value of relevant experience in the field. Just as I see the need to invest in our future through providing opportunities for students to become educated in noise control theory and its application, I also see a need to encourage people to go the extra "nine yards" and become board certified. Certification is not easily gained, because it needs to reflect the confidence of the noise control community in a person's abilities to solve noise problems. If we don't know someone, but we know that they are board certified, we have the confidence to recommend them; this only comes from board certification representing a real achievement, a meaningful qualification. As such, it also serves to elevate public opinion of the profession. As President of INCE/USA, I would like to increase the number of board certified members in the US and also to do a better job in advertising why choosing a board certified member of INCE to help solve noise problems is the right choice. 



Patricia Davies
President, INCE/USA

Noise and Health—Enough Action on Noise Action Plans?



Bernard Berry

European Editor

Noise and Health issues are featured in a number of important Noise Policy documents. For example, the Environmental Noise Directive 2002/49/EC (<http://ec.europa.eu/environment/noise/directive.htm>) states as its aim - “to define a common approach intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance due to exposure, to environmental noise,” where “‘harmful effects’ shall mean negative effects on human health”.

A key part of the EU Strategy requires that the competent authorities of Member States shall adopt action plans “based upon noise mapping-results, with a view to preserving and reducing environmental noise where necessary and particularly where exposure levels can induce harmful effects on human health, and to preserving environmental noise quality where it is good.”

So – the question arises – how much does Noise and Health feature in consideration of Action Plans. As part of the preparation for a meeting in mid-May 2008, organized by the World Health Organisation (WHO) on “Practical Guidance for Risk Assessment of Environmental Noise,” a survey was conducted to gather information from EU Member States on how the “Health Effects of Noise” are being considered in the process of developing Noise Action Plans mandated by the European Noise Directive (2002/49/EC).

In consultation with WHO and with DG Environment at the European Commission, an email survey was designed to identify the needs and gaps in the health-based approach to the development of Noise Action Plans.

The survey was sent to relevant contacts in all Member States, using a contact list provided by the Commission.

The following basic questions were included;

Question 1. Do you intend to consider the Health Effects of Noise in preparing your Action Plans?

- a) Yes (please go to the next questions)
- b) No (please go to question 5)
- c) Uncertain

Question 2. Which Health Effects will be considered?

For example- Annoyance/Sleep Disturbance/ Cardiovascular Disease/Mental Health/Cognitive Impairment/Hearing Loss/Tinnitus/Others?

Question 3. For each Health Effect listed above - what information will you use on Exposure-effect relationships / Thresholds/ Limits etc? Which exposure-effect relationship (if any) will you use? Which limits/thresholds (expressed in decibels or health risks) will be used?

Question 4. For each Health Effect listed in Question 2, – do you intend to perform a quantitative health risk assessment to estimate the proportion of the population affected by noise?

Question 5. Finally, if you have any general comments on the needs and gaps in the use of a health-based approach to the development of Noise Action Plans, please add them below.

You may also wish to draw our attention to relevant issues and documents from your own country that need WHO attention.

The survey was sent to representatives from the 27 EU countries. Responses were received from thirteen representatives.

A detailed report will be published on the WHO website at <http://www.euro.who.int/ecehbonn>. However the key results can be summarized as follows;

- Only 3 of the 13 replies indicated that Health Effects would be, or are being considered.
- Annoyance is the most commonly mentioned Health Effect, but 2 replies mention cardiovascular effects.
- Where exposure-effect relationships are given, those in the EU Position Papers relating to Annoyance and Sleep Disturbance are prominent.
- Of the 13 replies, only in the case of Lithuania has a risk assessment been done, and on a limited basis.

There was a clear indication that additional guidance from WHO would be welcome.

Given the high prominence in the legislation to health effects, it is perhaps surprising that more EU Member

continued on page 27

The Sociedade Brasileira de Acústica

The Sociedade Brasileira de Acústica (SOBRAC) was founded on 1984 November 21 in a historic meeting of 35 founding members.

However, several technical meetings and activities had occurred long before this date, involving various groups—including universities, research institutes, consultancies, manufacturers, noise and vibration product suppliers, and equipment manufacturers.

By 2003, SOBRAC had 700 members, including 517 individual, 98 student, and two life members (including one international member). SOBRAC is also supported by 85 organizations from industry. In accordance with SOBRAC by-laws, the elected board of directors serves a three-year term.

SOBRAC's first president was Professor Jules Slama from the Federal University of Rio de Janeiro (1984-1985) and, in 2002, Professor Samir N. Y. Gerges was elected for three years—from 2003 to 2005 and Marco Nabuco 2006-2008.

SOBRAC's main objective is to help diffuse information on acoustics and vibration among researchers, manufacturers, consultants, and users. This is carried out during regular annual meetings, symposia, and SOBRAC publications. SOBRAC publishes a biannual technical journal, *Revista de Acústica e Vibrações*, which covers the major fields in noise and vibration. About 100 pages are published in each issue. One thousand copies are distributed to society members in Brazil, and to other acoustical societies in South America, Portugal, and Spain. This journal has a free yellow pages section for organizations and company members.

SOBRAC is a member of several international organizations: I-INCE (International Institute of Noise Control Engineering) since 1985; ICA (International Commission of Acoustics); IIAV (International Institute of Acoustics and Vibration); and FIA (Federação Iberoamericana de Acústica). SOBRAC has an observer at ICA, EAA, IIAV, and also at I-INCE.

SOBRAC played an active role in the elaboration of the Brazilian "Law of Silence" in 1990, the "Vehicle Noise Law" in 1993, and Noise Labeling in 2000. SOBRAC has representatives in the Brazilian Institute of Standards and in other societies related to safety in the workplace, acoustic comfort, and phonaudiology.



SOBRAC has several active groups: the Vehicle Noise Group, which has held a symposium every other year since 1991 in Sao Paulo; the Building Acoustics Group, which holds a joint meeting with the Thermal & Ergonomic Groups of other societies; and the Hearing Conservation Group, which works with safety medical officer groups of other societies such as those of audiologists, safety officers, and industrial medical officers.

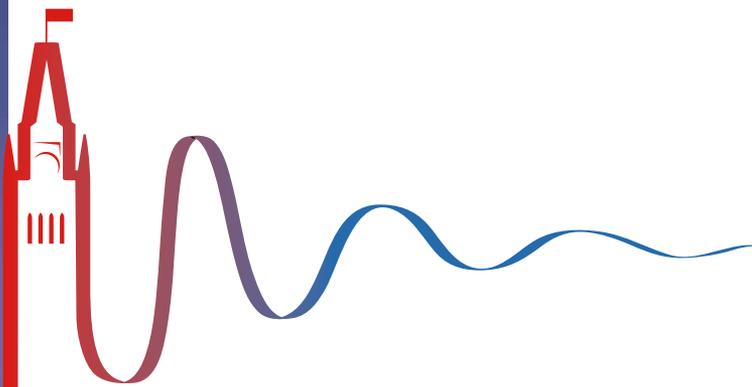
SOBRAC has held annual meetings since 1980 in Sao Paulo, Rio de Janeiro, Santa Maria, Belo Horizonte, and Florianopolis. The most recent meeting was held in Sao Paulo 2007. This congress was organized by SOBRAC members from the National Institute of Metrology in Acoustics (INMETRO) and attracted more than 200 participants and manufacturers' exhibitions.

SOBRAC has played a leading role in the creation of the Federação Iberoamericana de Acústica (FIA), a federation of the acoustical societies of Argentina (AdAA), Brazil (SOBRAC), Chile (SoChA), Mexico (IMA), Peru (SoPeA), and Spain (SEA). FIA's first president was Professor Samir N. Y. Gerges, who presided up to 2002. In 2002 December, FIA organized its third meeting in 2002 jointly with ASA and IMA in Cancun, Mexico, with over 1200 participants and 1100 papers. In Portugal 2004 and in Santiago-Chile in 2006. Fia next congress will be in Buenos Aires in November 2008.

Prof. Samir Gerges organized INTER-NOISE 2005, the 34th International Congress and Exposition on Noise Control Engineering which was held in Rio de Janeiro, Brazil, on 2005 August 06-10, with over one thousand participants, 25 booths, 4 distinguished presentations and pre-congress courses. The INTER-NOISE Congress was highly regarded by the attendees. 

This is the 62nd in a series of articles on the Member Societies of International INCE.

Member Society Profile is a regular feature of the Noise News International. If you would like to have your society featured, please contact George Maling at inceusa@aol.com.



inter·noise 2009

innovations in practical noise control

2009 August 23-26 — Ottawa, Canada

WELCOME MESSAGE

Dear Colleagues,

The Organizing Committee of the 38th International Congress and Exposition on Noise Control Engineering (INTER-NOISE 2009) extends a warm welcome and invitation to participate fully in what promises to be the premier noise control engineering conference of 2009. The INTER-NOISE 2009 Congress, sponsored by the International Institute of Noise Control Engineering (I-INCE) and co-organized by the Canadian Acoustical Association (CAA) and the Institute of Noise Control Engineering-USA, will be held in Ottawa, Canada from 23–26 August 2009.

The Congress will feature a broad range of high-level research papers from around the world, as well as an extensive exhibition of noise and vibration control and measurement equipment and systems. Distinguished speakers will provide additional stimulation for our technical sessions and discussions with a focus on our theme of “Innovations in Practical Noise Control.”

The 2009 International Symposium on Active Control of Sound and Vibration (ACTIVE 2009) will be held 20-22 August, immediately before the INTER-NOISE 2009 congress. The ACTIVE symposia gather together international experts in active control of sound and vibration and are held every 2 or 3 years. ACTIVE 2009 will feature five plenary speakers and three parallel technical sessions following the plenaries.

The INTER-NOISE 2009, and ACTIVE 2009, will be held at the Westin Ottawa Hotel, which is located in the heart of Canada’s Nation’s capital close to all major attractions, Parliament Buildings, National Gallery, Royal Mint, and more than 12 national museums, etc.

It is our pleasure to welcome you to INTER-NOISE 2009 and ACTIVE 2009 and invite you to participate fully in all aspects of the Congress and Symposium. We look forward to meeting you in Ottawa, a culturally rich and dynamic city.

Sincerely,

Trevor Nightingale, Co-President

Joe Cuschieri, Co-President

On behalf of the INTER-NOISE 2009 Congress and Exhibition Organizing Committee

LOCATION

Ottawa, Canada, 23–26 August 2009, Westin Ottawa Hotel

SOCIAL PROGRAMS

23 August – Sunday: Opening Ceremony and Welcome Reception

24 August – Monday: Exhibition Opening Reception

25 August – Tuesday: Congress Banquet (tickets required)

26 August – Wednesday: Closing Ceremony and Reception

TECHNICAL PROGRAM

Technical papers in all areas related to noise and vibration control are invited for inclusion in the technical program. The broad theme of the Congress is “Innovations in Practical Noise Control,” and papers of specific relevance to this theme are especially encouraged.

Papers are welcome in broad technical areas of noise and vibration control, prediction, and assessment, including: active noise control, building and room acoustics, community and environmental noise, computational methods in acoustics, passive noise control materials and methods, shock and non-linear acoustics, signal processing, structure-borne sound (including fluid/structure interaction), subjective response to sound (including quality), transportation noise, underwater acoustics, vibration and modal analysis, and more.

The Congress will consist of approximately 10 parallel sessions as well as a poster presentation area. A number of structured technical sessions are being planned, and proposals for the organization of additional structured sessions are welcome. Prospective organizers of additional sessions are invited to contact the technical co-chairs Brad Gover and J. Stuart Bolton via email to technical_chair@internoise2009.com.



PLENARY SPEAKERS

Each of the first three days of the Congress will feature a plenary lecture by a pre-eminent noise control engineer. Details will be posted at the congress website.

ACCOMPANYING PERSONS PROGRAMS

Organized activities are planned for all three days of the congress that will give participants a unique opportunity to experience the beauty, cultural diversity, and history of Ottawa and the surrounds. Details will be posted at the congress website.

ORGANIZING COMMITTEE

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CALL FOR PAPERS

PAPER SUBMISSIONS

Abstracts Due: 23 January 2009

Notification of Acceptance: 20 March 2009

Papers Due: 22 May 2009

INSTRUCTIONS FOR ABSTRACTS

Abstracts for INTER-NOISE 2009 and ACTIVE 2009 must be submitted through the INTER-NOISE 2009 website (internoise2009.com). The website will accept Word document files, but please do not use special characters or equations. It is important that you do not submit your abstract as a PDF file.

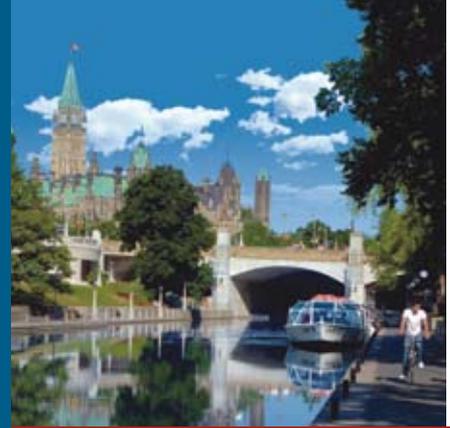
- The abstract should follow the format specified and submitted through the abstract submission form available from the main INTER-NOISE 2009 website (internoise2009.com). An email with the subject IN 2009 Abstract Submission will automatically be sent to author confirming receipt of the abstract and assigning an abstract identification number.
- I. Paper title. Capitalize only the initial letter and special letters such as: Korean, NAH, Rayleigh, Worldcup, etc. (20 words maximum).
- II. I-INCE subject classification (classify your paper using the detailed classification of subjects at <http://www.i-ince.org/data/classification.pdf>)
- III. First author's name, organization, title, postal address (including country), phone, fax, and e-mail (essential) for correspondence.
- IV. Additional authors' names and addresses (if any).
- V. Indicate specific type of paper.
 - Invited paper (include the session title and organizer)
 - Paper intended for oral presentation
 - Paper intended for poster presentation
- VI. Text of the abstract. The text of the abstract must not exceed 200 words. The text should be typed double-spaced and should include:
 - A brief description of the problem being addressed
 - Why the problem is important
 - Description of the original contribution of the work
 - Pertinent conclusions
- VII. Number or code of the special session, if applicable. Please refer to the Web site of INTER-NOISE 2009 for the information on the topics of special sessions, session code, and its organizers.

A sample abstract will be available on the Web site to be followed as an example.

The abstracts will be published with only minor copy editing in a booklet to be available at the conference.

Acceptance notices of the submitted Abstracts will be sent to the authors by 20 March 2009 and final manuscripts must be submitted by 22 May 2009. With the acceptance notice, authors will receive additional instructions on the formatting and submission of the papers. The procedure for submitting the papers will be similar to that of the abstracts, that is papers will be submitted on line and uploaded as PDF files.

All registrants for INTER-NOISE 2009 will receive a printed booklet containing all abstracts, the final technical program, and a CD that will include all INTER-NOISE 2009 and ACTIVE 2009 papers. Conference organizers reserve the right to schedule papers for appropriate sessions and appropriate format (poster versus oral presentation).



CONGRESS INFORMATION

REGISTRATION

INTER-NOISE 2009 Congress and ACTIVE 2009 Registration and Registration fee payment will be available November 2008. The registration form is completed on line and submitted directly to the Congress Secretariat. An email acknowledging receipt of the registration is be automatically generated and sent to the email address provided on the registration. Payment of the registration fee will also be available on line using credit card payment or can be paid by check and mailed or paid by bank transfer. If using bank transfer a copy of the bank transfer form should be mailed, faxed, or e-mailed to the Conference Secretariat.

EXPOSITION

A dedicated exhibition space will enable companies to display the latest in technology and services in the areas of noise and vibration. The area will be the focal point for coffee and refreshments during breaks in the technical schedule. The exhibition will kick-off Monday evening with a reception, run all day Tuesday, and wrap-up by noon on Wednesday. For further information contact Exposition Manager: Richard J. Peppin, Scantek, Inc. , 7060 Oakland Mills Rd #L, Columbia, MD USA 21046 410-290-7726, 410-290-9167 fax www.ScantekInc.com, PeppinR@ScantekInc.com



GENERAL INFORMATION

VENUE

The congress venue is the Westin Ottawa a four-star hotel offering 495 spacious guest rooms and suites many having spectacular views of the Rideau Canal and ByWard Market from floor-to-ceiling guest room windows. Additional guest rooms have been booked across the street at the Fairmont Chateau Laurier a grand hotel steeped in a century of history. Located in the heart of the city, both hotels are close to all major downtown attractions, Parliament Buildings, National Gallery, Royal Mint, etc. as well as the renowned Rideau Shopping Centre. A short 5-minute walk from the hotels, the ByWard Market offers a multitude of dining options for both lunch and dinner as well as ample shopping and entertainment. A food court in the Rideau Shopping Centre, which is attached to the Westin Ottawa, provides budget dining alternatives. The hotels are 20 minutes from the airport via taxi or shuttle bus.

LANGUAGE

The official language of the conference is English.

OFFICIAL INVITATION

On request, the Organizing Committee will be happy to send a personal invitation for participation in the Conference. It must be understood that such an invitation is only to help visitors obtain funds for travel and accommodation or a visa and is not a commitment on the part of the Organizers to provide any financial support. Please contact the Conference Secretariat for these letters.

TRAVEL

Requirements for entry into Canada from foreign destinations vary according to country. Please check with the nearest Canadian embassy or consulate for passport and visa information. The recently expanded Ottawa International Airport is serviced by multiple non-stop flights each day to most major hub cities in Canada and USA, as well as non-stop service to several European cities each day. Flights every 30 minutes to Toronto and Montreal provide convenient connections to the world.

OTTAWA

Ranked as the sixth in the world for quality of life, Ottawa provides a wealth of opportunities for its visitors. Situated in a beautiful natural setting filled with dozens of parks and surrounded by wilderness, visitors are always impressed with our green, clean and safe city. In the city centre visitors can view the majestic Parliament Buildings and their beautiful setting on a 33-meter cliff overlooking the Ottawa river, take one of the boat tours offered on the Rideau Canal and Ottawa River. One can explore the many national museums, attend a concert at the National Arts Centre, or simply enjoy some refreshments or meal at one of the many outdoor cafés and restaurants. The congress website has links to the many attractions.

CLIMATE

Participants can expect an average daily maximum temperature of 25°C (77°F), but the humidity will make it feel warmer. In the evenings temperatures can cool off rapidly to a low of 14°C (57°F).

TIME ZONE

In August, Ottawa will be on Eastern Daylight Savings Time, which is GMT -5 hours.

CURRENCY AND CREDIT CARDS

The unit of currency is the Canadian dollar. Foreign currency and travelers' checks can be converted at banks. Exchange counters are located throughout the airport and at many major hotels. Internationally recognized credit cards are accepted at most hotels, shops, and restaurants. Some shops and restaurants will accept US Dollars and if they do the exchange rate is typically less favourable than at a bank.

ELECTRICITY

Most hotel outlets will be 110 volts AC at 60 Hz. Always check the power supply before using electrical equipment.

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E-mail: ibo@inceusa.org

Public pressure—an effective force II

Janet Moss

Noise Control Foundation, Poughkeepsie, New York

Preface

A fifth Global Noise Policy Workshop was held during INTER-NOISE 2007 in Istanbul, Turkey, on Wednesday, August 29. The theme of this workshop was “Public Pressure—an Effective Force.” The all-day workshop featured sessions with presentations by informed parties from countries around the world. Each session was followed by a question-and-answer discussion period. The Workshop was organized by Janet Moss of the Noise Control Foundation, Poughkeepsie, New York. Three sessions were organized. The presentations and discussions have been assembled by Janet Moss into a “Source Book” which is available from the Foundation (noisecontrolfoundation@gmail.com). This feature article contains summaries of the panelists that spoke in the second and third sessions. The summaries from the first session appeared in the March issue of this magazine. Panelists spoke on the effectiveness of public pressure to influence legislators to enact noise control policy. The topics addressed during the three sessions included the following:

- Generating public involvement through education,
- support from NGO interest groups, and
- effective use of the media.

Many participants in earlier workshops have been engineers knowledgeable in the technical aspects of noise control; here we sought to involve the public and those organizations that represent the public. Remember, it was public pressure that led to the movement in many countries to ban smoking in public buildings. Could public pressure also be effective in reducing noise in our communities?

Session 2 – Support From NGO Interest Groups

Panelists

Nina Renshaw, European

Federation for Transport and Environment (T&E), Belgium.

Innovating EU Policy on Traffic Noise - Summary

Timur Diz, IZODER, Turkey.

Success Story of the Insulation Industry in Turkey

Gloria Elliott, Noise Abatement Society (NAS), United Kingdom.
Noise Abatement Society Activities

Session 2 presentations were focused on Non-Governmental Organizations (NGOs) activities—what they have been doing and what has worked. The question-and-answer discussion which followed the Session 2 presentations is documented below.

Presentations

Nina Renshaw, European Federation for Transport and Environment (T&E), Belgium.
Innovating EU Policy on Traffic Noise - Summary

Transport and Environment (T&E) is a federation of 49 environmental groups (NGOs) in 21 European countries that are working towards a more sustainable transport policy. The T&E secretariat is located in Brussels and is active on EU-level policy. Their goal is to make transportation cleaner by setting standards for vehicle emissions, fuel efficiency, fuel quality, air pollution, and green public procurement. T&E advocates more

efficient use of transport, the use of infrastructure pricing based on internalization of external costs, transparent and fair fuel taxes, use of efficient intelligent transport systems, and improved infrastructure and logistics planning. T&E also encourages noise emissions standards and quiet technologies. For noise as for other forms of pollution, policies should be in place to internalize the costs, e.g., the polluter pays.

Regulations and standards for noise performance of different modes of transport come from different levels of government. For transport noise, the international level—including the EU—is often most important when setting product approval standards or emission limits. Such international regulations and standards could contribute as much as a 40 percent reduction of road noise and a 60 percent reduction of rail noise.

An EU objective from the 6th Environmental Action Program is to substantially reduce the number of people exposed to potentially harmful noise levels (with concrete targets for 2010 and 2020). This led to the EU Environmental Noise Directive (END) which requires noise mapping and local action plans. Also planned are source measures and emission standards which are complementary to END objectives. The T&E project deals with traffic noise only, a most pervasive environmental noise. While traffic noise imposes huge costs on society in general (health, productivity, property values, etc.), there are some cost-effective ways to reduce noise from roads and railways. T&E believes the current standards are ineffective and that there should be more emphasis on the importance of tires in overall road noise.



The current T&E project is called “Innovating European Noise Policy,” and focuses on traffic noise from both roads and railways. The objectives are to reduce the impact of surface traffic noise in Europe (in line with the 6EAP objective) and accelerate the development and implementation of effective road and rail traffic noise regulation to the extent that EU policy can achieve quieter vehicles and infrastructures.

To achieve goals via political lobbying and networking at European and international levels and in Member States, it is necessary to have project partners, member organizations, and a European NGO coalition. With cooperation it is possible to promote stricter standards, economic incentives, product information (labels), political commitment, public awareness of noise and its health effects, and representation of environmental interest in decision making.

Current vehicle noise test methods (including engine, mechanical and exhaust noise) are outdated. Cars can be designed to perform quietly under the test conditions. However, under real-world conditions the vehicles may perform differently and be considerably noisier. The noise emission tests for vehicles date from the 1970s. The limit values and the test method have been changed several times, most recently in 1995. Vehicle air emission standards, however, have been tightened three times since then.

Economic incentives such as tax reductions for quiet tires or penalties for noisy vehicles may be effective. Consumer products labeled with noise level information may encourage the manufacture of quieter products, as well as raising consumer awareness.

Transportation is the most widespread source of environmental noise, and it is getting louder. There are 210 million potential victims in the EU exposed to noise levels which may be harmful to health. Up to 45,000 deaths per year from cardiovascular disease are linked to traffic noise. Other public safety issues related to traffic and environment are improving, but very little is being done about traffic noise. The WHO already recognizes noise as a serious and widespread public health problem; but the public, politicians, and the media should be made more aware of the dangers.

A report has been commissioned by T&E to research the effects of traffic noise on health and the costs to society. This report will be used in lobbying and a shorter brochure version will be used for communications with Members of European Parliament, national politicians, NGOs, and the public. This report shows that people fear reduced property values if too close to a noisy highway and are willing to pay more for homes in quiet areas to avoid noise. The cost of disability-affected life years (DALYs) is over €40 billion

per year, which is equivalent to about one third the cost of road traffic accidents. This is a conservative cost estimate as it does not cover the costs of noise barriers or insulation, some health costs (e.g. stress, child development), lost work time and productivity, sleep deprivation, and the values of tranquility and leisure time.

The technology is already available to provide a quieter environment. There are cost-effective solutions which could save millions of Euros. In the Netherlands, it is estimated that a 1 dB(A) traffic noise reduction from source measures could save €100 million on remediation measures nationally. To require that this technology be implemented, there must be cooperation among the Member States, NGOs, legislators, and the media. If T&E and partner organizations work together through online discussion groups, campaign activities, position papers, and media coverage, the information can be made known to the public and action taken.

The NGOs fighting noise appeal to noise control engineers to get involved and offer their technical expertise to support NGO efforts. NGOs need technical experts to participate in working groups and committees, and advise in the preparation of policy briefings, position papers and other publications. Technical assistance would also be helpful in setting up well-informed websites and interactions with the media.

The EU has set some ambitious goals for the next two years. During 2008 it is expected that there will be a new EU tire directive which includes noise ratings. A road-surface acoustical classification should also be decided in the coming years. In 2009 it is expected that there will be new vehicle noise test methods (with new standards to follow) as well as a review of the Environmental Noise Directive. There is funding available within the European Institutions to carry out these activities, and of course the industries concerned will devote attention to the decision-making processes. However, funding for the activities of the NGOs and the WHO for work on traffic and environmental noise in general is less certain. Who will support those advocating a quieter world?

In conclusion, the NGO network should be expanded to provide better dissemination of information and better coordination of NGO activities. We must raise the profile of noise with the media to generate more public interest. The public awareness situation is perhaps comparable to that of particulate emissions ten years ago, so it's useful to see how public concern has developed on that issue. Consumer products should be better labeled to give potential buyers more information (including noise levels) with which to make an informed decision. And most importantly, strong links between NGOs and noise control experts must be created to provide the support needed on the technical aspects of noise control.

Timur Diz, IZODER, Turkey. Success Story of the Insulation Industry in Turkey

A major problem for Turkey and the insulation industry in particular is a lack of understanding of noise and its effects. People who live in large cities such as Istanbul think that the noise is the natural result of modern life, and the effect of noise on public health seems irrelevant. Many educational and medical facilities are built without considering the acoustical properties of the construction. Cities are planned without any community noise

strategy. When noise is considered a problem, activities which may cause excessive noise are forbidden by local authorities. For example, last summer playing music in the recreation areas near by the Bosphorus was banned after midnight. Because of such bans, the need for acoustical engineering services is very limited; and industries which provide solutions, like the insulation industry, cannot flourish.

How can we motivate the local authorities to solve the noise problems properly, and how can we improve the public awareness of the negative effects of community noise? It was impossible to solve this problem with the individual efforts of the insulation manufacturers and would have been too time consuming. Also, the local authorities prefer cooperation with NGOs instead of manufacturers for being fair minded. An umbrella organization was needed in order to solve the common problems of insulation companies. Its aim was simple: "To overcome the problems of the sector by using the synergy created in the umbrella organization." To create and generalize an awareness of insulation in Turkey, IZODER – Insulation Association was established in June, 1993, by the architects and engineers who specialized in building design and construction.

After the foundation of IZODER, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis was prepared to create a general strategy.

According to this analysis, the strengths of the insulation industry are:

- Noticeable difference in noise level.
 - Local producers/manufacturers.
 - EU Accession.
 - Ministries cooperating well with NGOs.
- And the weaknesses of the sector are:
- Lack of information about the benefits of insulation.
 - Inefficient regulations and absence of regulations for buildings.
 - Poor enforcement of regulations.

- Insufficient attention during renovations.
- Low incomes of the end users.

The results of the SWOT analysis also showed that, to reach IZODER's goal, the strategy must include;

- learning and training activities,
- updating and integrating the standards and regulations, and
- raising public awareness,

Targeted groups are defined as

- Governmental organizations for standardization and legislative studies
- Designers, controllers and students etc. by means of capacity building
- End users to improve public awareness.

Initially, reviewing and updating of legislation related to sound insulation was taken under consideration. IZODER was supportive of and also hosted technical studies on the adaptation of the assessment and management of environmental the noise directive. Our experience shows that it is impossible to succeed in enacting noise legislation without public awareness and capacity-building activities.

In order to satisfy the requirements of the legislation in practice, an extensive educational campaign had to be launched at different levels to reach designers, technicians, and builders. A strong education policy and capacity-building

program had to be formed in Turkey. Public information campaigns and a review of the education system had to be a part of this policy.

As an important part of this education policy, an agreement was signed between the European Commission and the Government of Turkey

to strengthen the vocational education and training system in Turkey. The project was initiated in Turkey with a total budget of 58 million Euros for 5 years between 2002 and 2007. Some of the activities of this project are supported by IZODER, such as development of occupational and training standards. IZODER is also preparing textbooks

We must raise the profile of noise with the media to generate more public interest.

for training modules related to insulation. We hope that the creation of a new vocational education and training system in Turkey will meet the construction industry's needs in the near future. We also believe that the builders have a key role in improving insulation awareness.

In 2003 the very first Department of Insulation Technologies, was founded by IZODER and The University of Kocaeli. IZODER is still providing specialists from its membership as lecturers for this department. Last summer, 50 students graduated from the college as insulation technicians. IZODER also offers help to these students to find internships and jobs in its member companies.

Another project, EUTREX, is conducted by IZODER and helps students find jobs or internships at the international level. The aim of EUTREX is to support young people during the transitional period between leaving school and finding an apprenticeship or a job by using the Internet. Its Internet website offers important information about job placement and training vacancies as well as working within the participating countries of the European Union (EU) and Turkey. The EU supports this project through the Leonardo da Vinci program. Currently co-operating are 14 partners from 11 member states of the EU and Turkey. IZODER represents Turkey as a project partner.

In 2005, IZODER, with EU financial support, established and financed an Insulation Education Center to create a qualified labor force. IZODER is conducting 4 education programs for designers as well as 2 training programs for builders.

In order to inform the professionals about sound insulation applications and benefits, IZODER also provided cost-free seminars and training courses for architects, engineers, construction companies, building inspectors, and local authorities throughout Turkey. IZODER is still offering internal education programs

related to insulation on behalf of the Chamber of Architects and Chamber of Mechanical Engineers.

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To reach the goal of its strategy, IZODER initiated a campaign to increase public awareness regarding insulation. The first step of the campaign was to inform the media representatives. To further support the campaign, 16,000 posters, 200,000 leaflets, and about 10,000 books were published. The campaign was publicized through TV programs, advertisements,

and editorials and targeted to reach the public through articles in the press, radio announcements, the publication of news bulletins, and the visual media. During the two years that the campaign was active, nearly 1,800 items appeared in the national newspapers regarding IZODER.

IZODER created publicity through its website, announcements, and advertisements in magazines and newspapers, which were aimed to give increase consumers awareness of the problems with noise and sound insulation.

Throughout the campaign, three different contests with prizes were held by IZODER. The best article contest was aimed to get the attention of academicians and designers of insulation. A best insulated building contest aimed to encourage and reward the construction companies which have installed better insulation than that recommended in the standards. The contests were held in six different categories and the entries of the contestants were judged by a scientific committee consisting of professors and IZODER administrators. IZODER supported the winners by announcing the results of the contest to the public.

The aim of the caricature contest was to reflect the artists' opinions about insulation to the public in an easily understandable way. A favorite was an interactive CD created for children on the subject of energy efficiency. This was to provide young children

with basic information regarding energy efficiency by means of computer games.

A free hotline was established to allow the end-user become more informed about insulation, and IZODER's web page provided accurate and reliable information. To disseminate the latest information about insulation, IZODER has its own magazine which is posted to universities and governmental organizations free of charge.

IZODER's activities have helped to increase awareness regarding the benefits of insulation which in turn has resulted in the growth of the insulation industry. The results of this work has been advantageous for all parties—the market volume of the insulation industry has increased and new employment opportunities have been as a result of the growth of existing firms and the establishment of new firms.

This campaign, which was run between 2004 and 2006 by IZODER, had a budget amounting to 750,000 USD. The budget of our news campaign which started in 2007 September is 1.2 million USD. Thanks to this synergy created in 1993, although all of the industry problems have not yet been solved, significant progress has been made.

IZODER believes that the private sector groups (NGOs) can have a huge effect on public awareness.

Gloria Elliott, Noise Abatement Society (NAS), United Kingdom. Noise Abatement Society Activities

The Noise Abatement Society describes itself as a practical, problem-solving charity, founded by John Connell who, starting in 1959, came up with common sense solutions to noise problems which worked. For example, he suggested replacing metal dustbin lids and milk crates with rubber and plastic alternatives and was one of the first to persuade manufacturers to work to reduce noise levels in their products so that the "Quiet" factor is now an important selling point.

John Connell campaigned to move London's Heathrow Airport to a new site

by the coast so that flights could take off across the sea where the noise would disturb fewer people. How the residents who live below the flight paths must wish that he had been successful! Especially in view of the present Government's plan to expand flight movement by over 50 percent before 2020.

He drew attention to the unnecessary noise in the environment which was harmful to health and productivity, and he coined the phrase "Noise is the forgotten pollutant." In 1960, as a result of his lobbying every Member of Parliament, noise was made a statutory nuisance and British citizens could, for the first time, seek legal redress over noise pollution.

The Noise Abatement Society (NAS) has made major contributions to the Control of Pollution Act of 1974, and the Environmental Protection Act of 1990 and continues to help local governments prepare codes of best practice.

John Connell proved that with persistence, publicity and common sense ideas, the environment could be changed for the better. In 1990 he was awarded the Order of the British Empire for his services to the environment. He died in 1998.

The blueprint for a successful advocacy group had been laid, and today the Noise Abatement Society still operates by the lobbying Parliament and providing practical solutions to noise problems.

The NAS runs the only 24-hour national noise help line in Great Britain, giving advice and guidance to the public about noise problems. The number of complaints and inquiries received by phone, letter, and fax and through the Society's website e-mail increased by 47 percent in 2007, an indication that noise related problems are rising dramatically.

Bringing nationwide noise problems to the Government's attention can be extremely

frustrating, and it is only dogged persistence that brings results. For example, five years ago new rolling stock was introduced onto our railways and with it a new train horn that was never environmentally assessed before being put into use. This horn was deafening in decibel terms, had an

uncomfortably shrill tone, and produced up to 140 dB at 5 meters, which is the WHO guideline for threshold of pain. Trackside residents' exposure to these horns resulted in sleep deprivation, nervous ailments, inability to work, marriage breakdowns, and even attempted suicide.

For four years the NAS organized public demonstrations, had numerous meetings with the Railway Safety Standards

Board (RSSB), and kept in constant contact with Members of Parliament in the areas of the country affected, encouraging them to form a committee to table a motion in Parliament. Questions were also raised in the House of Commons. So much pressure was put on the RSSB that it finally admitted that the train horn noise constituted a noise nuisance and agreed that they would withdraw the requirement to sound it at night. The NAS is pressing hard for the horn to be replaced by a quieter model, the only answer to abating this unnecessary noise pollution.

Every autumn the NAS holds the John Connell Awards at the House of Commons to give recognition and encouragement to those local authorities who are outstanding in their efforts to reduce the impact of noise nuisance in their boroughs. As a result of winning the John Connell Award, most environmental health practitioners found that their council elevated noise as a priority and they received a greater portion of funding for their work. The publicity generated also raises public awareness.

Awards are also given for advances in technology and innovation in the field of noise abatement. One of the award winning technological ideas was the

broadband reversing alarm which, unlike the shrill sounding alarm currently in use, is quieter and safer because the source of the alarm is instantly locatable and the person in danger turns immediately towards it. After the vehicle has passed, the alarm is no longer audible, lessening the noise disturbance to the environment.

The NAS decided to promote the use of broadband sound as a quick answer to unnecessary urban noise and started an initiative called "Quieting the Streets with Broadband Sound." The Society donates one broad band reversing alarm to a local authority for trial and assessment of its qualities. If successful, it is expected that the Council will recommend broadband as policy for all delivery and service vehicles throughout its borough bringing some peace and quiet to its residents.

Anticipating the inevitable introduction of night time deliveries to reduce congestion in our towns and cities, the NAS introduced a new initiative called "Silent Approach," a stringent, monitored, quiet night time delivery scheme. This is run in collaboration with local councils and supermarket stores with quieting measures put in place and monitored trials to ensure that residents are not disturbed before the delivery restrictions are lifted.

To maintain ongoing quiet standards, the independent NAS helpline is always prominently displayed so that the public may have immediate redress if a noise problem occurs. Initial trials are taking place at the moment in two cities, and the results will be published in early 2008.

While recognition of the dangers of excessive noise to the community is well researched and documented worldwide, the British Government has chosen to downgrade noise on its priority list. It is decreasing its expenditure in this field at a time when noise pollution is on the increase.

Controlled noise levels in residential areas are crucial to wellbeing, but complaints about noisy neighbors and neighborhoods have risen fivefold in the last 20 years. Stress endured by neighborhood noise

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can manifest itself in physical and mental illness, the cost of which is borne by our National Health Service.

In schools, research has shown that pupils' concentration and achievement are detrimentally affected by excessive noise. The cost of nationwide academic under-achievement must be huge. Add to that the cost of lost productivity and sick leave due to excessive noise in the workplace. And the cost of anxiety, discomfort, and inconvenience, all must be factored into the total cost of noise to the Nation. The Government cannot afford to ignore this any more.

Our Government seems to view noise in isolation rather than as an underlying symptom of dysfunction. The NAS would like to have all ministries liaising through a central office to recognize the universal effects of noise pollution and work together to minimize them.

Discussion

European Federation for Transport and Environment (T&E) – Tires, road surfaces, NGO technical support, cardio-vascular disease, joint campaigns, highway speed limits, funding, UNECE

Question for Nina Renshaw: How does your organization interact with the “vested interests,” e.g. the tire manufacturers' lobby and your NGO?

Answer: We sit on many of the same committees so we have regular contact with them. We also have face-to-face meetings with industry representatives to explore common interests. Sometimes different companies in the same industry have different priorities. Michelin, for example, is interested in the CO₂ reductions of tires. With more environmentally-minded manufacturers sometimes we find that our interests come together well, particularly on rolling resistance. But on noise we expect it to be more challenging to reach any agreement.

Comment: In Tampere, you mentioned there would be a report on tires given to the Commission in 2005, and it was never presented because the tire

manufacturers refused to release it. How does your organization interact with the vested interests that are slow to adopt advancements in the technology? This is key because the technology to make quieter tires is available.

Comment: One of our activities focused specifically on tires, and a report was submitted to the Commission with positive results. In mid-2007 the Commission accepted our recommendations and started a public consultation. We have good contacts with the Commission so sometimes they give us a hint of what their plans are. Also by following that kind of advocacy work, presentations that they've been giving, and their media work, we have some idea of what they're doing. With this consultation now we'll submit our position as an environmental NGO federation—what our members have been saying and what other members of our coalition have been saying.

Comment: This tire noise directive is a very important one. Road traffic noise is the primary problem in noise control, and tire noise is a very important part of it. When the tire noise directive was issued for the first time, the limits were defined at such a level that the directive had hardly any effect. It was prepared by Pirelli for the Commission and Pirelli has played the game well. The requirements are only for new tires. Improvement of this directive is needed.

Comment: Tire noise is the priority of our work, much more so than vehicle noise. It is possible to develop more effective standards.

Comment: There is evidence that technology is available that is not being applied.

Comment: It is a problem of road surface noise. I agree that the directive about tires is very important, but another important factor is the roughness of the surface. It is at least as important, if not more. In many

circumstances, for example in France, we find administrations that install very rough road surfaces in order to avoid slipping. This can increase the noise by about 10 dB, and the noise can be heard at a distance of 1-2 kilometers.

Comment: There is action being taken at the Commission level on road surfaces. A first step which is happening now is a classification based on the noise performance of different surfaces. Most Member States had their own classification for the performance of different pavements, but there was no consistency between them. It took a few years work to get harmonization in terms of acoustic classification. Although that's a few steps behind what's happening with tires, I think the Commission is going in the right direction in that they can claim that they are addressing all noise sources—the tires and the road as sources, as well as the vehicles.

Question for Nina Renshaw: You mentioned a technical group in your NGO. How does it operate? Particularly on motor vehicle test methods? Are you familiar with the I-INCE report on the subject of road vehicle noise?

Answer: Our technical input is restricted to sitting on the expert groups and giving our input as best we can. One of our partner organizations in the Netherlands (Stichting Natuur en Milieu) has a technical noise expert who is part of our team. He acts as liaison, attending these meetings and trying to follow what's going on. Yes, I'm familiar with the I-INCE report; and, though it is 8 years old, it's still very relevant. Usually I sit in on the expert committees, but I don't have a technical background. Although I can understand the conclusions

at the policy level, I have been looking for more technical advice—people to represent our project when we sit on

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these committees. It would certainly be more productive than my attending and struggling to understand.

Comment: Maybe we can think about further support for you.

Question for Nina Renshaw: What are the noise levels on which the estimates of 45,000 deaths annually due to cardiovascular diseases are based?

Answer: The author of that study, Professor Wolfgang Babisch, presented a paper at INTER-NOISE 2007 with the details. It's based on empirical studies from Germany and Denmark where excessive noise levels above the WHO guidelines were linked to cardiovascular deaths from noise exposure.

Comment: This study starts with levels—a 24-hour level between 60 and 65 dB. That's where the risk of having cardiovascular disease or infarction increases; and, the higher the level, the higher the risk. Levels below that are fairly safe.

Question for Nina Renshaw: Would a joint campaign with CO₂ or air quality be more effective to reach the public and the politicians?

Answer: At the moment in our organization and other EU institutions, each of those aspects is a policy area by itself, with dedicated specialists working on air quality, EU standards, and noise. They are very distinct policy issues. Although there is some synergy, there are aspects, especially from air quality debates on health impacts and effective standards, where we can usefully draw parallels. It doesn't really make sense in our organization right now to join forces. While it might be appreciated by the public, it would not be an effective approach at the political level.

Question for Nina Renshaw: Does your organization have a position on imposing a speed limit on the Dutch autobahn in order to conserve resources and energy and

ultimately not require such a robust design on all automobiles?

Answer: Definitely. T&E does not have a position on that officially as it only applies to one of the EU's 27 Member States. But in Germany the environmental organizations have a very strong position on imposing speed limits on the highways. T&E's German member organization (Verkehrsclub Deutschland) feels strongly about that and has a strong media presence on that as well.

Question for Nina Renshaw: How is your organization funded?

Answer: Part of our funding is a core grant from the European Commission's Environment directorate. They have a funding line for European NGOs, but that only covers some of the basic running costs of our office. Apart from that we have project-based

funding which comes from a variety of sources such as environment or transport ministries from different member states. Funding might come from regional or local authorities where they see a vested interest in a certain issue. For example, on sustainable freight transport, we have looked at more environmentally-friendly transport policy, particularly in border and mountain areas. That project is funded by some Spanish regions near the Pyrenees and the Swiss Transport Ministry provides some funding. In addition, we get some project funding from philanthropic foundations.

Question for Nina Renshaw: Explain more about the UNECE Working Group on Noise.

Answer: The UNECE sets product approval standards which were originally trade standards for safety, braking, seat belts, etc. They have a working group on noise emissions as part of it where they measure noise emissions of the vehicle as a whole including tire/road noise. There are about 150-200 people represented on the

ECE which meets twice year. Although it is named ECE (Economic Commission for Europe), there are representatives from the US-EPA, Japan, and other Asian countries. Russia always sends a delegation.

Germany and the Netherlands send people from their environmental agencies. Other than that it's people from trade, industry, and transport ministries. What's adopted by this committee is usually adopted in other parts of the world. They're working on a new test procedure and would like to make the standards more effective. But first they must collect test data to compare the new method to the old method. This takes a long time.

Comment: Does the UNECE have some mandate from a higher organization in the U.N.?

Comment: It has the UN mandate.

Comment: Part of the problem is there is a discrepancy between the levels of knowledge of people on the committee. It invariably gets into a technical discussion which can only be understood by those with degrees in engineering. They often get bogged down in minute details and lose the bigger picture about what this will mean in terms of real world noise impacts.

IZODER -- Insulation requirements, labeling, and material types

Question for Timur Diz: Is there a noise labeling process for insulation?

Answer: If you build a structure, you must comply with the requirements of the "Environmental Noise Directive." To comply with the regulation, the designer must know the noise reduction values of building elements. For that reason the manufacturers should declare the performance of their products combined with other structural building elements. However we don't have any testing facility for such combined performance tests. Therefore, manufacturers cannot declare the performance of their systems. Usually the producers declare only the sound absorption coefficient of the materials. Some of the companies are using the test results of their European partners for

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their systems. The real problem is not the absence of testing facilities, but the lack of interest in those characteristics related to noise control. Requests for the performance statistics of building elements are rare. Establishing a test facility is easy, but first we have to raise the information level of the designers. This is not easy; that's why we are conducting education programs for designers.

Question for Timur Diz: Is the focus only on insulation or is it also on source-related measures?

Answer: All the members of IZODER specialize in insulation, our activities are related only to insulation, and we offer our service to organizations who deal with insulation. To emphasize the benefits of insulation we provide information on general issues like the effects of environmental noise on public health. We select a general problem like environmental noise and then suggest solutions. The solutions to these problems are only detailed if related to insulation. That's why we are conducting awareness campaigns.

Question for Timur Diz: Are there any incentives to the people who are doing the insulation to go beyond the minimum requirements.

Answer: Yes, but very rare. The minimum requirements are defined with regulations. For example, the regulation for thermal insulation, which is very popular in Turkey, covers only 4.4 percent of the total building requirements. We have to install the minimum first and, after that, you can go beyond the limits. We sponsor a contest for insulation in a building which is called "Best Insulated Buildings." The aim of this contest is to encourage the construction companies to insulate better than the minimum required by regulations. In addition to an award, we announce the winning construction companies to the public. This is expected to create insulation demands which exceed the minimum.

Question for Timur Diz: Noise in hospitals is a big problem. Are there insulation materials suitable for use in hospitals?

Answer: There are many materials you can use in different types of buildings like

educational facilities, hospitals, homes, and industrial buildings. These materials can be produced by either local manufacturers or foreign companies. There are also many international companies with factories in Turkey. For that reason all types of materials are available in Turkey.

Noise Abatement Society -- Electric vehicles, refrigeration truck noise, broadband warning signals, communication, motorcycle noise, NGO operation

Question for Gloria Elliott: Does the NAS envisage the use of electrical commercial vehicles in the cities instead of diesel engines? In the 1950s, mail delivery trucks were run on batteries in Germany.

Answer: Yes, we have been in touch with some of the electric lorry companies. The problem is that they can't carry enough cargo at the moment and the length of the journeys is short. So, yes, we encourage technology in that area.

Comment: We had electric cabs in the 1920s, and the city of Amsterdam is

experimenting with using trams to get goods into the city center and from there distributed to other points within the city.

Comment: Regarding the noise from refrigeration units, when trucks are equipped with this source of noise, there are many complaints about the noise which cannot be reduced.

Comment: Last November, the technology award was given to a company that has quieted refrigeration. The technology is based on nitrogen refrigeration. When they first demonstrated this, they opened the back of the truck and there was a loud noise—beep, beep, beep—to warn the driver to stand back because of the nitrogen coming out. So they had a silent refrigeration truck with a loud warning noise. We suggested using broad-band noise, which they have adopted. So now there are silent refrigeration trucks with less-annoying warning sounds. Hopefully soon more trucking companies will adopt this.

Comment: One could use inductive wires, electricity like we have used in the past for busses or are now using for trains. They can move big loads and could be used in cities particularly at night. The wires are already there, and the busses are not running at night; so the tracks could be used.

Question for Gloria Elliott: How soon will the tests on broadband back-up signals be completed?

Answer: The broadband reverse alarms are on the market and already in wide use in the U.K. They've been tested and accepted.

Question for Gloria Elliott: But will the government allow these alarms to replace the pure tone backup?

Answer: The government has already accepted and recommended the technology.

Comment: The one problem with using broadband is that people might not

recognize it as an alarm. But an individual only has to hear it once and ask what it is; and, because it's directional, one knows where it comes from immediately as opposed to the old alarm. When you are in a car and hear a fire engine or police car coming at you, you freeze because you don't know where it's coming from. With broadband, because it's directional sound, you know exactly where it's coming from. It's safer. Broadband is used for fire escape in London tunnels. This was tested in the Mersey Tunnel. The manager covered his

head, was turned around and got on the floor. When the alarm sounded, he found his way blindfolded to the exit. The alarm is directional and loud enough. At fewer decibels it can be heard as well as a louder pure tone.

Question for Gloria

Elliott: A website of best practices would be useful for NGOs and local authorities—in English and national languages. The NAS seems to use this but only nationally.

Answer: Through cooperation between the U.K. and the Environmental Bureau, a fact sheet is being developed. It will be at the local level as well as at the international policy level. Depending on how it is received and how widely it can be distributed, it may be translated into other languages. There are plans now to translate it into German; and if there is interest from other countries, we'll do the same.

Comment: Communication within Europe is important—getting more information to more people. That's the only way we're going to get people to raise the noise issue with their governments. The government will respond to the public, but the public must know what their rights are, what can be done, and join together to become stronger. One voice alone is not going to do anything.

Comment: There is more than just one way to quiet our cities. Trucks, for example, may be restricted to certain areas. Some cities have pleasant centers because

they keep vehicles out of these areas. This presents an example to the public of what is possible. People enjoy walking in these areas and realize how it can improve the health of the city.

Question for Gloria Elliott: What is NAS doing with respect to highly-tuned motorcycles?

Answer: Not a lot at the moment; we don't have time to cover everything. We are trying to address the effects of traffic noise from all sources. There are people from the motorbike associations on the committee on which we participate, and they are looking into it. All we can do is answer queries from the public about it and suggest they contact the council.

Comment: The noise from motorcycles is different from the noise of other traffic because the driver of a highly-tuned motorcycle is enthusiastic about the "full" sound of his cycle. The bystander, of course, is not enthusiastic, particularly during the night. So this is a two-fold problem—first, not to allow the high-tuning and, second, to instill in the drivers a sense of civility.

Comment: At the moment if somebody is creating a lot of noise at night, the annoyed people must first get in touch with the council. It could be a lengthy process to enforce the law. In the past if there was a noise problem, the police would go there immediately. Now it takes a long time for anything to happen.

Question for Gloria Elliott: I'm impressed by the results you have achieved and the enthusiasm you display for the goals of NAS. How many active members does NAS have? Are there volunteers?

Answer: We have many volunteers and could not function without them. As with other NGOs, our funds are limited. We have a subscription base of about 6000, which includes individual members and corporate members. We have lots of ideas, but our biggest problem is lack of funding. And we must be careful about accepting money as the donors may hope to gain some influence over our activities.

*The broadband reverse
alarms are on the market
and already in wide use
in the U.K.*

Comment: IZODER is independent as are other NGOs, but every manufacturer is a member. They can't do anything wrong because the competition is also there. We have a completely different situation.

Summary of main points:

1. NGOs have many ideas and potential projects—the biggest problem is getting the funding to implement these. Another problem is to get media support to publicize the NGO activities.
2. NGO members and volunteers are, mostly, non-technical. Cooperation with a technical group (like INCE) would provide an important source of information and guidance.
3. Regulations exist to control many aspects of noise such as building insulation, vehicle noise emissions, and excessive community noise. A problem is to inspire a desire in those responsible to go beyond the regulations. Technology is not necessarily the only way to quiet sources.
4. EU activities in the area of noise directives have influence worldwide but are often time-consuming and not as stringent as they could be.

Session 3 – Start a Movement to Quiet the World

Panelists

John Stewart, Noise Association, United Kingdom

How to get the best bang for the buck—or freebies—when using the press, radio, and/or TV. What is newsworthy? What “trigger” could be used and why now. Is this a new problem?

Robert Hellweg, Hellweg Acoustics, United States

How do we create public desire for quiet products? Such a demand will naturally generate market forces to provide such products? Perhaps a Global Eco-label which is clear without use of decibels.

George Maling, Noise/News International, United States

The Internet is a rich source of information about noise. If the public can effectively be reached in other than the mainstream media, the Internet will be an important tool.

Truls Gjestland, Sintef, Norway

What will attract the attention of legislators at all levels and motivate them to take action against the adverse effects of excessive noise? What can the INTER-NOISE organizers do to capture their attention?

Presentations

John Stewart -- Effective Use of the Media in Noise Campaigning

We face a number of difficulties in using the media when campaigning on noise issues. This short presentation will outline these and then suggest ways to overcome them.

Difficulties we face:

1. **Noise is not seen as a serious issue by the media.** They often just regard it as a bit of a light-hearted issue. They like to feature stories about silly noises.
2. **On the occasions when the media does take noise seriously, it tends to focus on the really dramatic stories** (such as “man kills neighbor whose loud music was driving crazy”) without putting these stories into any policy context. That makes it more difficult for campaigners who are lobbying for policy changes.
3. **There are very few journalists who specialize on noise issues.** On most issues, such as transport, crime, environment, housing etc, there are specialist journalists dealing with them. Therefore there is an opportunity for campaigners to get to know these journalists, to have “a conversation” with them through sending them press releases, to establish a working relationship with them.

Ways to Overcome the Difficulties:

1. **Concentrate on one noise campaign at a time.** This is not always possible or desirable, but it can help in getting good media coverage. It simplifies the issue for the media and it can enable us to get across to them quite clearly what policy change we are looking for. In the UK, the Noise Abatement Society did this successfully with its campaign to reduce the noise from train horns. It got the media interested in a campaign which brought together local people and politicians aiming for a very specific change in policy.
2. **Find a media-friendly way of highlighting an issue.** The UK Noise Association did this when it wanted to highlight a report it had published on traffic noise. It felt that it needed a media “hook” to get coverage for the report. So it announced a nationwide competition where it asked people to nominate the most noisy road in the country. The result was huge media coverage for the report!
3. **Make our stories as simple and visual as possible.** We can even use the media’s desire for a silly story or a very dramatic story to our own advantage. It will only work if we get it across that we are using the silly or dramatic story in order to illustrate a wider point or highlight a policy change we would like to see put in place.
4. **Send out a regular stream of press releases.** All the press releases may not be used but we do need to establish “a conversation” with the media; to let them know we are in existence and what we do and have to say so that we become the place the media go to when they want a comment on noise.
5. **Look for allies.** The more people who are pressing for some change in policy, the more likely the media are to take it seriously and cover it. Therefore

On the occasions when the media does take noise seriously, it tends to focus on the really dramatic stories.

we need as many allies as we can find. Sometimes they may be allies who are wanting the same policy change but not for noise reasons. In the UK, for example, campaigners concerned about aircraft noise have teamed up with those concerned about climate change to fight proposals for airport expansion.

6. Get as many people as possible saying the same thing.

This is a development of the last point. We are not just looking for allies on particular campaigns, although that is a useful thing to do. To be really successful in persuading the media to take noise issues seriously, we need to build up a network of people all calling for similar changes to take place. If we can do that in our own countries, it will be useful. If we are able to build up an international network, that will be even more effective.

Robert Hellweg -- Marketing "Quiet" for Informed Purchasing

What prevents consumers from purchasing quiet products? The information about these products is either very limited or, if it exists, may contain confusing metrics and technical jargon. To enable consumers to make informed decisions about the products they wish to purchase, the product information must be "user friendly." The use of simplified Eco-labels which do not use dB levels or other technical terms is suggested.

What are the roadblocks to consumer information? Product sound power and sound pressure metrics were designed for acousticians and not for consumers. There is confusion over declared values that are "statistical maximum" values and those that are average values. Other energy sources such as radiated heat and light do not have these roadblocks.

Compare the descriptors of heaters and those of noise sources. The public understands to ask for a 1kW heater. They

do not ask for a 27°C heater. How can the public understand sound power levels and sound pressure levels when they are expressed in the same units—in decibels? Without technical training, the potential purchaser cannot understand.

For example, consider the following specifications for a portable cooler:

- Cooling: 12000 BTU ≤ No mention of temperature °C
- Frequency/voltage/cooling current: 50 Hz/ 230 V
- Noise: < 55 dB(A)
- Airflow: 480 m³/h
- Refrigerant: R407C/600g
- Input power: 1200 W

How much of the above information is truly understood by the average consumer?

A better approach to including noise levels on consumer products could be a graphic...

To eliminate the confusion of dB ratings, ISO Standards should eliminate the use of decibels for product sound power levels for reporting information to customers.

The sound power unit does not matter – just as long as the unit is different from the sound pressure level unit.

There are other ways to convey product sound power information to consumers such as microwatts for sound power (or some other function of watts), bels for sound power level, or "relative noisiness" based on L_{wAd} (Schomer, NNI 2000) where $L_{wAo} = 20$ dB.

ISO 4871 permits two types of declaration—dual number where both the average A-weighted sound power level for a batch of products and the uncertainty factor (K) are reported, or a single number where the statistical maximum is equal to the average A-weighted sound power level for a batch of products plus the uncertainty factor. The problems with dual number values are that it is difficult to compare reported values from products using single number declarations, and it rewards poor product quality sloppy measurements since consumers will ignore or not understand the uncertainty factor that depends on measurement precision and product unit-to-unit variation.

Examples of confusion from noise declarations are the interpretations by consumers of the indicated noise levels. With which vacuum cleaner (A or B) can a consumer be confident that the noise levels will be lower than the reported value?

- Manufacturer A: $L_{wAm} = 65$ dB, K = 6 dB
- Manufacturer B: $L_{wAm} = 67$ dB, K = 3 dB

The consumer will think A is lower noise since 65 is lower than 67 and ignore or not know the effect of K; however, the product with the lower "labeled" value actually has higher "guaranteed" noise values.

Which product is quieter, a vacuum cleaner (A) or a portable air conditioner (B)?

- Vacuum cleaner (A): $L_{wAm} = 65$ dB, K = 6 dB
- Portable A/C (B): $L_{pA} = 73$ dB

The consumer will think product A is the quieter since $73 < 65$. But the portable air conditioner has the lowest "guaranteed" noise values since:

Vacuum cleaner (A): $L_{wAd} = 71$ dB = $65 + 6$
 Portable A/C (B): $L_{wAd} = 73 = 63 + \sim 10$ dB ($L_{pA} \geq L_{wAd}$)

It is recommended that the dual number noise declarations from ISO 4871 be eliminated to avoid confusion over metrics and that a different metric for product sound power other than decibels be used. It is also recommended that noise labels be simplified to make them more understandable. These labels should include a range of levels (Nobile, EU Machinery Directive, and the EU Energy Label).

A better approach to including noise levels on consumer products could be a graphic such as a bar that is color-coded from blue to red where blue is the quietest (4.0 B) and red is the noisiest (5.3 B). An arrow would point on this bar to the sound power level of the labeled product. The EU Energy Label for washing machines features a graphic and also gives numerical values.

Eco-Labels for product acceptability are used worldwide as approvals for "ecologically" good products and many include the sound power level criteria as one of many

environmental criteria. If established properly, such eco-labels may signify “quiet products” or “acceptable” products. But care must be taken that appropriate criteria are established. For example some eco-labels do not consider what levels are acceptable in different environments.

Eco-labels are used worldwide—in the Americas, Europe, and the Asia-Pacific region. A good example of an eco-label that includes noise limits that the products must meet in order to receive the label is the Nordic Swan. For example, a washing machine with this label has met the following criteria: “Airborne acoustic noise from the machine, in terms of sound power level, must not exceed L_{WAd} 56 dB(A) during the washing cycle, or L_{WAd} 76 dB(A) during the spin cycle, measured in accordance with the test method specified and using the same standard 60 °C cotton program as used for measuring energy efficiency.”

In conclusion, to increase public awareness of the noise of products and promote buying quiet products, the roadblocks to public understanding of product acoustics must be removed. Eliminate the use of decibels to report sound power information. Also eliminate the dual number noise declarations in ISO 4871 because the ultimate users of ISO product noise standards are the consumers, not acousticians. Most importantly, use easy-to-interpret Eco-labels to report noise levels.

George C. Maling, Jr. -- Use of the Internet

It is not difficult to go online and search the Internet. What is difficult is finding what you need online. For example, if you go to Google and enter “Noise” as your search criteria, you will get about 137 million hits. So there is no lack of information on the web, but to find what you need, you will have to work at refining your search—being much more exact about what information you seek. This is time-consuming, but the Internet is direct and low-cost.

When Vannevar Bush first discussed the idea of “trails” in literature just after World War II, the Internet, indeed the computer, were decades in the future. His idea was that an expert in a particular domain would

identify trails through the literature that would provide stopping places where there would be rich sources of information on that particular topic. In 1999 an article was published in *Noise News International* that emulated Bush’s ideas. The article was available on the main INCE/USA web site for many years, but has been taken down pending revision. It can, however, still be accessed at members.aol.com/inceusa/surf4.html. As this publication has not been updated, the search for information today is facilitated by using one of the numerous search engines available online.

One is able to find information online at all levels—international, national, and regional. Within sites on noise found at these levels, information is available on standards, educational opportunities, governmental support, consulting firms concerned with noise, available hardware and software, and links to various environmental and citizens’ groups concerned with the noise issue.

Some citizen websites that are particularly active and useful are:

- Noise Pollution Clearinghouse at <http://www.nonoise.org>. For example, this NGO has at least 70 sites related to aircraft noise.
- National Society for Clean Air and the Environment (NSCA). This group organizes a Noise Action Week; the most recent was held during 2008 May 19-23.
- Hong Kong has excellent tutorial material available online which may be found at: http://www.epd.gov.hk/epd/noise_education/web/ENG_EPD_HTML/m1/intro_5.html

Information from sources such as the above is very useful, but is addressed more toward the technical or legislative aspects of the noise issue. The public just wants to know how to solve a noise problem they may have. Community noise problems cover such issues as aircraft noise for

homes near an airport or highway noise for homes nearby and whether barriers are an effective solution. The public is concerned with the noise of their neighbors either through transmission in multi-family dwellings, or lack of consideration from nearby home owners such as boom cars or using power equipment at hours when many are sleeping. They are also concerned with potential hearing damage from the iPod music their children find so compelling (and loud).

Most professional societies have their own websites which, in addition to history and organization information, offer links to related websites, technical papers, information summaries, and calendars of meetings or seminars they are planning. But there is a mismatch between the

professional society site and the individual who just wants to solve a noise problem. It is a difficult task for the societies to present practical solutions to everyday problems.

To make online information about noise, its effects and possible solutions, more useful, professional societies can tailor their websites to be easily accessed and

used by both the public and the technical community. The purpose or mission of the organization must be stated clearly. In the case of I-INCE, cooperation among its Member Societies must be encouraged. Once the I-INCE website is structured to be easily understood by all and includes links to the Member Societies, it can be an example for other organizations.

Another possibility to get more exposure is for I-INCE to become a Sponsored Link on Google. The cost is not excessive, but a Google search for ‘noise’ now brings I-INCE up as one of only three responses. Once on the I-INCE website, an individual can access a link to one of the Member Societies. Within that society’s website might be links to various noise-related resources within their country.

*Another possibility to
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Truls Gjestland -- How to attract attention (to noise annoyance issues)?

Noise often loses the battle of “attention” in the media compared to other pollution issues like air quality, toxic waste, etc. The main reasons for this are that noise does not accumulate in the environment (like toxic waste for instance) and then noise disappears if the source is removed. Noise is usually associated with “annoyance,” and this is not considered serious enough to warrant attention.

The only way to get exposure in the media is to emphasize the cost of noise, in other words, to transform the arguments in to economic quantities.

The presence of noise causes a depreciation of property values. A change of 1 dB in the noise level corresponds roughly to a 0.5 percent change of value.

Norwegian authorities estimate the cost of one highly annoyed person to be 2000 EUR annually (approximately 3000 USD). Comparable figures have been reported by other European countries.

Recent studies indicate a clear correlation between exposure to high levels of road traffic noise (typically $L_{den} > 65$ dB) and cardio-vascular diseases. The risk for fatal IHD (ischemic heart disease) increases. At 73 dB L_{den} the relative risk for IHD is about 1.1 compared to people exposed to noise levels below 60 dB. (http://www.transportenvironment.org/docs/2008_05_who_babisch.pdf)

By comparing the total number of fatal IHD, the increased risk, and the number of people exposed to road traffic noise above 65 dB, it is possible to estimate the number of premature deaths caused by road traffic noise. For Norway the number is between 75 and 150 deaths per year. This is about half the number of deaths caused by fatal car accidents (≈ 250).

Home accidents are often neglected as an important factor for premature deaths. In Norway about 500 people are annually killed in home accidents (mainly cuts and falls). The occurrence of serious home

accidents increases with increasing night time noise levels. People that wake up at night are more involved in accidents.

The increased risk of fatal accidents found in German studies and transferred to Norway indicates that 100-150 fatal accidents can be expected in the highly noise-exposed population.

Simple arithmetic for politicians: In Norway the sum of fatal cases of IHD and home accidents amounts to about 250 deaths per year. Statistics: Norway has estimated the cost of one premature death to be 3 million EUR. The total cost per year is therefore 750 million EUR. In addition Norway has 500,000 highly annoyed people at an annual cost of 2000 EUR each. That amounts to a total of 1 billion EUR.

Reducing noise can therefore prove to be very cost-effective.

Discussion

NGO Activities

Question for John Stewart: What is the mission of the UK Noise Association and how does it relate to that of the Noise Abatement Society?

Answer: We are a national body and work very closely with the Noise Abatement Society. We are an umbrella body of various national and regional organizations concerned about different aspects of noise. We include people who are concerned with traffic noise, aircraft noise, poor sound insulation, and so on.

Question for John Stewart: You talked about the formation of an international network of enthusiastic individuals on noise. Have you attempted to form such a group?

Answer: Not on noise in general, but on aircraft noise. In addition to chairing the UK Noise Association, my specialty is aircraft noise. There's a big program with proposed airport expansion in the UK, and we have a body which has brought together all the campaign groups concerned

about airport expansion—the NGOs and individuals. It has its own website with links to websites of both individuals and campaign groups. It links with similar networks in Europe where campaign groups and individuals specifically concerned with airport expansion come together. That network is on one particular aspect of noise, and it works. I question whether a network could work so well on noise in general. There may need to be a number of networks on different aspects of noise. An essential part of a network is what links the people together. Aircraft noise links some people. There may be another network on neighbor noise, but the link is important to establish a network. We tried to start a network on road traffic noise. There are no individuals involved yet, but we have a number of organizations.

Comment: Our NGO (Noise Abatement Society) tackles road and railway noise; and though it's an NGO group, we would welcome more members, especially those with technical expertise, to join the discussions.

Labeling

Question for Bob Hellweg:

The EU has just announced that a label will be introduced for tires relating to energy efficiency. Could you envisage combining noise emission information on the same label? Would it be useful to have similar classifications (Classes A-E) for noise and energy efficiency?

Answer: Since I assume that tire noise is not independent of road surface, it might be hard to isolate tire noise emission. But it is something worth investigating.

Comment: As a result of consumer confusion regarding noise levels, we as a manufacturer are forced to use messages such as “Can quiet your plumbing system as much as 75 percent,” etc. Those wanting a little more information are provided with dBA noise reduction values along with a brief description of what they mean.

*The occurrence of
serious home accidents
increases with
increasing night time
noise levels.*

Manufacturers are confused as to how to have products tested, and nearly every acoustician voices a different opinion.

Comment: That manufacturer is trying to provide consumers or purchasers with information about what they're selling—quiet plumbing. Regarding product testing, there should be standards on how to make measurements. If a particular product is something to reduce noise it may be difficult to develop test methods because different sizes and types of noise-reducing products may affect differently the noise reduction of products or machinery which emit the noise, such as a PC, a refrigerator, or a washing machine. There should be standards available to cover noise reducing products. With machinery-type products—things that cause hearing loss such as forges, stamping machines, and other machines that you find in industry—there are close to 500 ISO machine-specific standards on safety that include noise measurements. With respect to products that reduce noise or products that do not cause hearing loss, I don't know how many test standards exist; but there should be a specific standard for each type of product for testing.

Comment: On the reduction—50 percent, 20 percent—physically you can say that the noise is reduced 50 percent if you reduce it by 3 dB; but from a perception point of view, it's 10 dB. So there's a big disconnect between the physical measurement and the human response. I also mention the possibility of using watts, the watt of sound power. That's dangerous because for almost all equipment, the number of watts of sound power are very small in comparison with the mechanical or electrical power. For example, in some of the numbers of the EU directives it's about a millionth of the label power. About 1 millionth of that is radiated sound. You have to be careful when using a watt because people will compare it to electrical watt and think that it is small, it is nothing.

Question for Bob Hellweg: Is there some sort of clearinghouse consensus of what manufacturers should use? In our case we've interviewed close to a hundred ac-

ousticians, and we had to average out the answers. You know: "Use ISO 3822 certified lab, do it in third octave." We had to put something together, but there's nothing that seems to be an agreed-upon standard.

Comment: In the UK Noise Association there is an award and a badge for quiet products. We're not acousticians, so how is this done? We made it simple, maybe too simple. We ask if this is the quietest of its kind on the market. If it is the quietest, then it could get an award. For example, a washing machine manufacturer came to us with two things—a big reduction from the previous product they had; and one of the quietest on the market. We really did struggle with what the public understands.

Comment: Many trade associations or industry-specific associations have developed measurement standards. If there is a trade association covering to your products, it may have developed a noise standard. If not, you may want to encourage this.

Comment: It's been done in the HVAC field, but in the plumbing field it's in its infancy. We might want to take the lead in that.

Comment: You might want to look at what the IT industry has done with its trade association, ITIC, as a guideline for your industry.

Comment: The Nobile proposal for labels showed blue on one end and red on the other end to indicate noise level. It showed colors, but the strength of that proposal was that it also had physical measurements in small type below so the acoustician could look at it and give a quantitative evaluation. The public saw blue, yellow, red; and the product was placed in a position on that scale with the range of values for products of comparable capacity.

Comment: I think the other challenge from the manufacturer's side is that there are several audiences to address. The

public end user needs something simple. A builder or contractor might need Stage 2, and an acoustician may need a large range of data. So it's a challenge.

Comment: This proposal will satisfy all of those. The numbers will satisfy the acoustician who will know what they mean. Then there is a range the public will understand.

Simple Terms

Comment: At a recent symposium in France, a person in one of the open sessions asked if it was necessary to inform the worker what a decibel is. This was a very good question because the worker gets confused by the decibel. It is not needed to send the message that long exposures to high levels of noise will result in hearing

loss to a significant fraction of the people so exposed. Or put a red sign outside the door where no one can go without hearing protection because the levels are so high.

Comment: In the EU work that is being done—the noise mapping—some say that's just for environmental noise. But we are at the same stage that air quality was about ten years ago. Few understood what ozone was. But there is a system in place now to rate air quality that's "poor" or "moderate" that people do understand. It would be great to have something like that for noise. For example, there is a dB chart which is pictorial and shows what different sounds are—what's quieter and what's noisier. The reaction I got from my noise committee, the technical people, was that I couldn't say that. I'd have to say it's a motorcycle 10 meters from the curb going at 50 mph. So what we're trying to do is get people to understand noise levels, and it doesn't have to be technical.

Website Links

Question for George Maling: Does INCE allow manufacturers who make "noise reducing products" to link to the INCE site? This could send added web traffic to the INCE site. Perhaps asking a

nominal fee for this would help fund the INCE website expenses.

Answer: Yes, the article that we wrote has many links to commercial manufacturers. I-INCE has not considered that problem as yet. There might be a link to a Member Society's web page, and this MS could, if it wished, have a link listing manufacturers. So much depends on the individual Member Society of I-INCE. I visualize the I-INCE links to be more general in the regional and international case since manufacturers are often located in more than one country.

Comment: I'm hoping we can get the Member Societies of I-INCE to post on their websites resources in their own country. That would create a network that's relevant to noise that one could search for information.

Comment: There are more than 40 Member Societies worldwide, and this is an NGO network of its own because none of these Member Societies are government organizations. So we've already got in place a network of NGOs that are waiting for some leadership from us to guide them on how to proceed.

Question for George Maling: What does I-INCE do about their Member Societies that don't have web sites?

Answer: The answer to that is: Go get one! There is a current listing of Member Societies which includes the name and address of the contact person and the website. But there is too much information for the person who just wants to surf for a solution to a noise problem.

Question for George Maling: Is there a forum where manufacturers can provide input to INCE?

Answer: If you are thinking about measurement methods, ISO is a more logical place to have input.

Comment: INCE/USA has six or seven technical groups. They address the different technologies, the different aspects of noise and noise control at an engineer-to-engineer level. And the president of INCE/USA is very accessible.

The Cost of Noise

Question for Truls Gjestland: What was the source of the cost of a highly-annoyed person of 2000 EUR/person/year?

Answer: That number was calculated by Norwegian officials of the Norwegian Pollution Control Agency, so it is not a number that we have invented. They used a report from some European bodies that gave numbers. You can approach this in many ways and come up with very much the same number, so I consider it quite reliable.

Comment: I've seen similar numbers, and I agree they're right. I also agree with the use of economics to influence the media. We've failed in the past because we didn't have the numbers. Air pollution is an example. The number that reflects the cost of air pollution was highlighted in the media and actually influenced policy. We need to use numbers, the economic approach. If we're able to do that, we're going to have media attention and a lot more success. We don't have to be 100 percent sure. As long as we're broadly accurate, we're able to have a basic case. Then the financial people and government can go work out the details.

Comment: There was a summary paper by Jacques Lambert of France in one of the more recent INTER-NOISE proceedings. He has the results of a large number of European studies mainly on the effects of property values. They do vary, but it doesn't have to be perfectly accurate to get big numbers.

Question for Truls Gjestland: Which organization is the most appropriate for promoting the "arithmetic for politicians"?

Answer: This is something the public must do to pressure the media to present these numbers. I've written letters to the Minister of Transport in Norway with no response. I told them they had zero vision which is that no person should be killed or seriously injured by road traffic noise. This does not fit with the numbers, and I asked what they were going to do about it. Nothing. But if we get press coverage, I think that in the long run this might work.

Comment: All organizations need to do this. It's essential in order to get media and government moving. They would rule on the numbers if they believed it's costing them money as they do for air pollution and smoking. It's what all our organizations—whether NGO or commercial organizations—should be doing because it's such an effective weapon.

Comment: I have talked to some politicians who are interested in the noise issue, and they were impressed enough to bring it to parliament. The Minister of Transportation has been told that these questions must be answered soon.

Comment: Can't the umbrella NGO organizations spread this type of information among their members so they can work with it?

Comment: Each organization has a vested interest in putting figures out for their own particular issue. The smoking issue was of high interest as was the 24-hour drinking issue. What happened? Now everyone has to go outside to smoke and a noise issue has been created because now we get complaints about people being outside pubs all the time making noise. So one is not listening to the other and they're not making coordinated efforts.

Comment: To get more cohesive messages to the press in addition to saying it is costing us money, we should always point out how little it will cost to remedy a situation relative to the cost. We could mention the Dutch study which found a saving per dB of 100 million euros in one country alone. Yes, the health issues get to the politicians; but telling them how much money they could actually save—that's gold dust.

Comment: The idea of getting the media involved is great, but the metrics need to be in place first. If you get in front of the media and everyone has a different message, then there will be even more confusion. It's not something that the INCE folks will have to bear the load of. You'll get a lot of people jumping on the band wagon to help get the word

out. Manufacturers of “noise reducing” products would get involved. The word will get out as long as there’s something that can be measured that everybody understands.

Comment: The metric is very simple—euros or dollars.

Future Workshops

Question for Bill Lang: Do you have any plans for the future to have more meetings which bring the technicians and the NGOs together? That could be very productive.

Answer: As you can see there are a lot of engineers talking to engineers on highly-technical subjects here at INTER-NOISE. This workshop is the first time that we have tried to interact with NGOs and the public to try to stimulate and perhaps create some worldwide network. We’ve got some very good ideas here, and we can promise

that this will not be the last effort to bring together those who are concerned with the noise issue, particularly to bring information from the engineers to the public who need it in terms that they can understand.

Summary of main points:

1. To be effective, NGO organizations should focus on a particular aspect of noise and not noise in general. This links people together into a network with a common goal.
2. Simpler methods must be employed to inform the public of the noise levels of products. Without public pressure, there will be no demand for quiet. A technical term such as the decibel should not be the only descriptor on a noise label.

3. The Internet is an underused resource and could much more effectively provide useful links to material useful

to the public, the NGOs, manufacturers, and technical specialists.

4. That excessive noise costs governments significant amounts of money is known. What is needed is a method to get these numbers to the media and legislators where they will have an impact.

5. Non-technical workshops have a place in the noise control field. The NGOs on noise representing the public do not include many technical people. Interaction between these organizations and I-INCE could be beneficial to all in our common goal. 

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costs governments

significant amounts of

money is known.

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Congratulations to Michael Howe

Mexico 15th Mexican International Congress on Acoustics

The 15th Mexican International Congress on Acoustics will be held on 2008 October 22-24 in Taxco, Guerrero, Mexico. The venue will be the Convention Center of the Posada de la Mission Hotel. Sergio Beristain is the Congress Chairman.

Topics to be covered include noise, architectural acoustics, physical acoustics, mechanical vibrations, and digital signal processing. An accompanying persons program will be held during the congress.

The lead organizations are the Mexican Institute of Acoustics, and the Faculty of Architecture (Campus Taxco) of the University of Guerrero. Other participating organizations include:

- Acoustical Society of America
- Camara de la Industria de la Construcción, Del. Oaxaca Cenidet
- CIIDIR, Oaxaca
- Electronics and Communications Engineers College Guerrero Cultural Institute
- Mexican Association of Broadcast Engineers and Technicians National Metrology Center
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Companies or individuals interested in participating as sponsors should contact the coordinators of the event. The minimum fee to participate as a sponsor is 7,500 MXN (800 USD). Logos and names of sponsors will be published in the conference proceedings and displayed in the sponsors wall. It is the sponsors responsibility to provide logos for both, publishing and wall display. Additionally, sponsors will have the right to a stand in the exhibit area (2 x 3 m).

For further information, contact the Congress Chairman at sberista@hotmail.com.

USA 2007 Rayleigh Medal

Michael Howe, Professor of Theoretical Mechanics at Boston University, USA, was awarded the 2007 Rayleigh Medal for his outstanding contributions to

research stretching over almost four decades, mainly in aeroacoustics.

The Rayleigh Medal is awarded by the Institute of Acoustics in the United Kingdom without regard to age to persons of undoubted renown for outstanding contributions to acoustics. It is normally presented to a UK acoustician in even numbered years and an overseas acoustician in odd numbered years.

The presentation was made by Colin English, president of the Institute of Acoustics at the Institute's Autumn Conference on Advances in Noise and Vibration Engineering at Oxford.

Accepting his medal, Professor Howe said, "I much appreciate this very great honor. I have been a member of the Institute since 1978 and have witnessed its vigorous and sustained promotion of excellence in acoustics teaching and research and its development into the authoritative UK body on environmental and other aspects of technical acoustics."

A Public Information Forum to be Held during NOISE-CON 08

A forum entitled "How Do We Stimulate Collective Action to Motivate the Public to Demand Quiet?" will be held in Dearborn, Michigan, on July 29 during NOISE-CON 2008. Because many Americans are unaware that something can be done about noise in their communities, successful campaigns which resulted in local and national programs such as those banning smoking in public places, will be examined in an effort to see how they might be a guide for a "quieter America" campaign. The methods available to educate and motivate the public on the effects of excessive noise and the availability of low-noise products will also be addressed.

Topics including the following will be covered:

- Effective use of the media
- What has worked for other NGOs
- Public education on the health threats of noise
- The impact of noise on children's learning
- Creating a demand for quiet products and simple labeling
- Inspiring community respect and responsibility
- Effective use of the engineering community

For more information contact Noise Control Foundation. Telephone: +1 845 471 5493; e-mail: noisecontrolfoundation@gmail.com. 

INCE Update

INCE/USA Business Office Moving

The Business Office of the Institute for Noise Control Engineering of the USA (INCE/USA) will be moving to Indianapolis, Indiana. Raybourn Group International (RGI) has been selected as the association management firm for the Institute effective 2008, July 1. The Raybourn Group has managed organizations for 20 years, and serves national and international client associations and their members. "We're excited about the opportunities for service to INCE members, and look forward to helping the volunteers advance the organization", says RGI President Sharon R. Gorup, CAE.

Since 2002, the INCE-USA Business Office (IBO) was managed by Iowa State University (ISU). According to Joe Cuschieri, Executive Director, "However it is time for change, and I would like to take this opportunity on behalf of the INCE/USA Board of Directors and other INCE/USA leaders to thank ISU for their excellent management of the IBO. RGI will bring a different perspective to the management of the IBO and while the services to the members have been constantly improving under the ISU IBO management, with RGI the quality of the services that INCE/USA provides to the members will continue to improve."

Primary staffing at the new headquarters office will be Steve Ingram, CAE, and Jenni Vincent. Steve has twenty-five years of experience as an association executive and has obtained the designation of Certified Association Executive from the American Society of Association Executives. Jenni Vincent is an experienced meeting and conference planner and membership database and services manager. The new Business Office address will be 7150 Winton Drive, Suite 300, Indianapolis, Indiana, 46268. The phone number is +1 317 735 4063.

Members and Attendees of the Noise-Con 2008 and ASME NCAD Conference and the SQS 2008 Symposium will have the opportunity to meet with the new IBO staff. Noise-Con 2008 and SQS 2008, will be held at the Hyatt Regency Dearborn, Michigan, 2008, July 28-30. The 2008 Sound Quality Symposium will be held 2008, July 31, immediately following Noise-Con 2008 also at the Hyatt Regency Dearborn. More information on Noise-Con 2008 and SQS 2008 can be found www.inceusa.org/nc08 

*The Institute of
Noise Control
Engineering
of the USA
business office
is moving to
Indianapolis*

Asia-Pacific News

.....*Marion Burgess, Asia-Pacific Editor*

JAPAN

ASJ CN-Model 2007

Construction noise prediction method "ASJ CN-Model 2002" was revised after five years investigations. The new version is called "ASJ CN-Model 2007" and issued on 2008 April 1 by the Technical Committee of Acoustical Society of Japan. In developing the model, latest knowledge and new experimental data were gathered. In particular, noise from blasting process for road tunnel construction had been investigated. Since the noise includes highly impulsive sounds, sound energy level L_j is used as sound source description. The sound emission data were collected for blasting charge weight from 36kg to 77kg. The new model is applicable to impulsive noise propagating through a tunnel portal to the open field up to 500m away from the tunnel entrance. The predictable noise indices are L_{CE} and L_{AE} . In addition, $L_{A, Fmax}$ is possible to estimate.

As for noises from ordinal machines and equipments at construction work sites, emission data are renewed. Sound attenuations and reflections due to various obstacles are included in the new model. 

Editor's View *continued from page 4*

States do not seem to taking such effects into account in their Noise Action Plans. Why is this?

Perhaps those involved in preparing Action Plans find the published papers and reports on health effects too complex, and are more comfortable with setting goals in terms of achieving reductions of X decibels, in the hope that health benefits will arise.

This situation calls for a closer dialogue between those involved in research on health effects, and those responsible for noise policy. Only with such improved dialogue will the world be a healthier place—for all of us. 

NOTE: The opinions expressed in this editorial are not of WHO but of the European Editor.

Congratulations to Gerhard Hübner

Germany

Gerhard Hübner Receives Commendation for Standards Work

The Rudolf Martin Honor Commendation for distinguished service to German and international standardization was awarded to Professor Gerhard Hübner on 2007 March 20 at the DAGA 2007 conference of the German acoustical societies. This commendation is in memory of Rudolf Martin (1925-1994) whose untiring work in acoustics standards in national, European, and international circles is commemorated. This Honor Commendation is awarded by the Standards Committee on



Acoustics, Noise Control, and Vibration Techniques (NALS) that is jointly sponsored by the German Standards Institute (DIN) and the German Association of Engineers (VDI). Since 1979, Professor Hübner has been teaching machinery acoustics at the University of Stuttgart and was promoted to Honorary Professor in 1987. He has been active in German standardization since 1975 as the leader of several working groups of the International Organization for Standardization. In addition to his membership in a number of professional organizations, he is a Distinguished International Member of INCE/USA.

European Union

New Tire Noise Regulations to be Proposed

The European Commission is set to propose new noise and energy efficiency standards for tires with a blanket exemption for Europe's noisiest and most gas-guzzling sports-utility vehicles (SUVs), according to draft rules seen by Transport and Environment (T&E), the sustainable transport campaign group. T&E is the principal environmental organisation campaigning specifically on transport at EU level. Together with its 51 member organisations in 23 countries, T&E works to promote an environmentally-sound approach to transport and mobility. www.transportenvironment.org

The news comes as new research presented by the German environment agency (UBA) to the World Health Organization showed that traffic noise poses the same risks to health as passive smoking and is responsible for more damage to public health overall than road traffic accidents.¹ A report published in February by T&E showed that close to half of all Europeans are regularly exposed to traffic noise levels that are potentially dangerous to health. The report found that noise from rail and road transport is linked to 50,000 fatal heart attacks every year and 200,000 cases of cardio-vascular disease in the EU.²

Nina Renshaw, transport noise campaigner at T&E said: "The EU has an embarrassing record on cutting noise from road transport. Although noise standards are already in place they are totally ineffective: cars are no quieter now than in the 1970s. Around half of all Europeans are suffering the consequences with sleepless nights, heart problems and impacts on learning abilities. Today's proposals do not go far enough to address this worsening problem, and giving concessions to Europe's noisiest vehicles is totally incomprehensible."

According to T&E, quite apart from the SUV exemption, half of all car tires sold today already comply with the proposed new noise limits.

"With around 50% of car tires on the market already complying with the proposed new standards, this package sends completely the wrong message to Europe's 74 billion Euro tire industry. We need tough standards that require and inspire innovation and new technology in the industry. This has been the case with EURO emissions standards for new cars, so why not with tires?" said Renshaw.³

The tire proposals also set new standards for rolling-resistance (energy efficiency / CO₂ emissions) of tires. But again the limits are unambitious. T&E estimates that more than 50% of the market already meet the second (final) stage of the proposed limits and, again, SUV tires, for the most inefficient vehicles will get an exemption. If the average tire sold in Europe were as good as the current state of the art, there would be at least a 5% reduction in overall CO₂ emissions from cars.

The European Commission proposal was published on Friday, May 23, 2008.

United Kingdom Bernard Berry Receives Honorary IOA Fellowship

(Edited by the managing editor from an IOA release.)

Bernard Berry, a former president of the Institute of Acoustics, UK and a well regarded and dedicated advocate of acoustics, has received the accolade of an Honorary Fellowship of the Institute of Acoustics (IoA).

Bernard's extensive career started at the Institute of Sound and Vibration Research in Southampton where he gained an MSc in Human Factors in Engineering. He then won a NATO Science Fellowship and spent a year at the National Research Council of Canada investigating the effects of impulse noise on sleep, using EEG techniques.

In 1970, he joined the National Physical Laboratory and dedicated 30 years there to a wide-ranging portfolio of activities in research, standardisation, consultancy and policy advice in the field of environmental noise and its effects on people. He excelled at his work which ranged from compiling the first ever "Leq Guide" for the Government's Noise Advisory Council in the 1970s, to more recent EU-funded team projects on the effects of noise on health.

In 2001 he left NPL and embarked on a consultancy career, establishing BEL Environmental, continuing his notable work in acoustics. His work has included an EC project on Road traffic and Aircraft Noise and Children's Health, and consultancy to the World Health Organisation's European Centre for Environment and Health in Rome.

Internationally, Bernard is an Executive Board Director of the International Institute of Noise Control Engineering, and acts as European Editor of this magazine. He advises many international bodies including the European Union and the World Health Organization.

He has been on the International Advisory Committee of a number of major Conferences, including INTER-NOISE 05 in Rio de Janeiro as well as chairing INTER-NOISE 96 for the IOA



Colin English (left), President of the Institute of Acoustics, presents the award at the Institute's recent Spring Conference held at Reading University in April.

in Liverpool and is now chairing the committee organizing EuroNoise 09.

Finally Bernard has consolidated his huge contribution to the acoustics field through publishing over 100 papers in academic journals and conference proceedings, reports and book chapters.

Workplace Noise Certificate Goes Abroad

The Institute of Acoustics (IOA) Certificate of Competence in Workplace Noise Assessment is currently delivered twice a year by twelve IOA-approved Institutions within the UK.

As a result of an approach from Princess Cruises, one of these institutions (RRC Training) has delivered the March presentation in California. Since Princess Cruise ships fly the red ensign, their emphasis is on British Health and Safety standards. Having shipped essential equipment in advance, David Wenham of RRC Training flew out to tutor this pioneering presentation of CCWPNA and invigilate the exam which was taken first thing in the morning on Friday, March 7 to coincide with the UK examinations.

For further information on the Certificate of Competence for Workplace Noise Risk Assessment, please Email: education@ioa.org.uk or telephone +44 01727 848195. You can also visit the website for all the Institute's training courses at <http://www.ioa.org.uk/education.asp>. 

¹ Dr W. Babisch, German Federal Environment Agency, presentation to World Health Organisation expert meeting on Practical Guidance for Risk Assessment of Environmental Noise, 15 May 2008, Bonn
http://www.transportenvironment.org/docs/2008_05_who_babisch.pdf

² <http://www.transportenvironment.org/News/2008/2/50000-heart-deaths-a-year-caused-by-traffic-noise/>

³ Europe's EURO emissions standards for cars have generally been proposed at a time when most cars did not meet the standard, in order to encourage a leap forward in emissions control technology. For example, there are no diesel cars yet on the market in Europe that already meet Euro 6 emissions standards due to come into force in 2014.

*Congratulations
to Bernard Berry*

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Books

Sound Ideas: Acoustical Consulting at BBN and Acentech

Deborah Melone and Eric Wood

xvii + 365 pp., 33 USD* plus shipping

Acentech, Inc., 33 Moulton Street, Cambridge, MA 02138, 2005

As the first author, Deborah Melone interviewed many of the acoustician whose consulting activities at Bolt Beranek and Newman (BBN) and Acentech are described in this book. In her preface, she says that “I began to think of the book as less of a formal history than as a group memoir—a collection of personal reminiscences, with some overlaps, repetitions, and occasional disagreements—of the people who had taken such pleasure in working in the relaxed, nurturing, stimulating environment at BBN.”

This book very nicely complements the autobiography of Leo Beranek, which was published in the March issue of this magazine. I regret that *Sound Advice* was not reviewed in a more timely fashion. It is the story of the scientists and engineers who made BBN and later Acentech successful acoustical consulting firms; it is a story not only of the people but the projects they completed. The first project in the Bolt-Beranek partnership was the acoustical aspects of the United Nations headquarters in New York. Many projects directly related to noise were undertaken early in the life of the partnership. Two that stand out, and were also written up in Leo Beranek’s autobiography, involve the beginnings of the jet age in the 1950s the problems with jet airplanes landing at Idlewild (now JFK) airport, and the story of the severe community noise problems with a supersonic wind tunnel at NASA Lewis (now NASA Glenn).

Lately, I have been working on preparation of a CD with the papers that appeared in the magazine *NOISE Control* from 1955-1961. Many of those contributions were made by people from BBN, and their stories are nicely told in the book.

Much of the book is devoted to those working in architectural acoustics. The “palace revolt” that led to the formation of Acentech is also described. As the second author, Eric Wood, says in his Foreword, “This book is written not only to provide historical documentation of acoustical consulting as practiced at Bolt Beranek and Newman and continuing at Acentech, but also to pay tribute to the many individuals who worked there...” He also says that it was written to provide “...a new generation of consultants who join Acentech a knowledge of their heritage...”

It also gives all individuals engaged in acoustical consulting a feeling for the post-war development of the field in the United

States, and the people that made it happen. The book does more than describe the activities of these two firms. There have been many other spin-offs from BBN over the years, and the authors have given us a brief description of the activities of three such firms, Cavanaugh-Tocci Associates, Hoover and Keith, and Harris Miller Miller and Hanson.

There are eleven appendices in the book. One describes many “milestones” related to technical developments; another is a useful compilation of early BBN reports, and a third is a listing of BBN “offshoots” over the years. The “offshoots” total 56 firms or individual consultancies—a clear indication of the importance of the field developed by Dick Bolt, Leo Beranek and Bob Newman. A fourth appendix gives “Advice on the Art of Consulting” from Eric Ungar, Bob Hoover, David Keast, Laymon Miller, Carl Rosenberg, Jack Curtis, and Bill Cavanaugh.

Although I was never an employee of BBN, I have been connected with many of the persons described in the book: My long-time colleague Bill Lang (BBN’s second employee), Chuck Malme and Karl Pearsons (roommates at MIT), David Keast and Norm Doelling (fellow students in acoustics at MIT), the late Ed Kerwin (a fraternity brother), three students that also took Ph.D degrees under Uno Ingard (Ira Dyer, Dick Lyon, and Tony Galaitsis), and Leo Beranek (first course in acoustics). In addition, there are friends, too numerous to mention, that I have worked with professionally over the years.

I recall one competition with BBN while working at IBM. The early computer monitors produced a tone at about 16 kHz, and young women complained to their management to the point where an important IBM customer refused to take final delivery of a reservation system. Our group was told to find and fix the problem, which proved to be a difficult task. Late one week, we were told that BBN had been hired for the same purpose. Bill Lang told the members of our group that we *would* solve the problem by the following Monday. Sure enough, we identified a small “singing capacitor” as the culprit and found an alternative that solved the problem.

—George Maling
Managing Editor

* Members of the Acoustical Society of America can purchase this book for 24 USD plus shipping. See asa.aip.org/publications.html.

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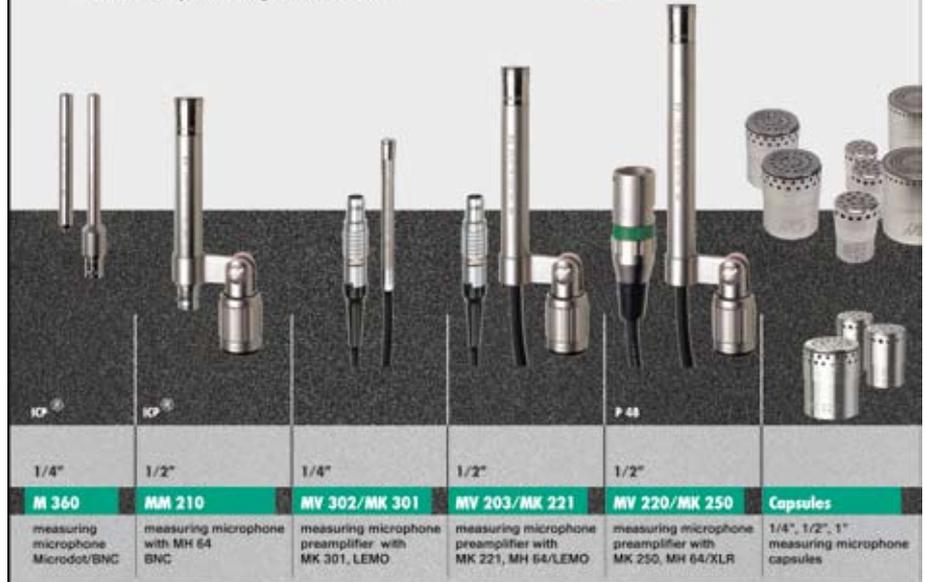
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Sweden	Department of Applied Acoustics, Chalmers University of Technology, Gothenburg
USA	Graduate Program in Acoustics, The Pennsylvania State University, State College, Pennsylvania

Conference Calendar

Below is a list of congresses and conferences sponsored by International INCE and INCE/USA. A list of all known conferences related to noise can be found by going to the International INCE page on the Internet, www.i-ince.org.

2008 July 27-30

NOISE-CON 08

The 2008 National Conference on Noise Control Engineering

The conference will be held at the Hyatt Regency Dearborn, Dearborn, Michigan. The 2008 Sound Quality Symposium will immediately follow the conference.

Contact: Institute of Noise Control Engineering-USA

Jenni Vincent, Congress Coordinator
INCE Business Office

7150 Winton Drive, Suite 300

Indianapolis, IN 46268, USA

Telephone: +1 317 735 4063

E-mail: ibo@inceusa.org

Internet: <http://www.inceusa.org>.

2008 October 26-29

INTER-NOISE 2008

The 2008 International Congress and Exposition on Noise Control Engineering

Shanghai, China

Contact: Institute of Acoustics, Chinese

Academy of Sciences, 21 Beisihuanxilu Road,
Haidian District, Beijing, P.R. China.

Tel: + 8610-62553765 • Fax: +8610-62553898

E-mail: internoise@mail.ioa.ac.cn

Internet: www.internoise2008.org

2009 August 23-26

INTER-NOISE 2009

The 2009 International Congress and Exposition on Noise Control Engineering

Ottawa, Canada

Contact: Institute of Noise Control
Engineering-USA

Jenni Vincent, Congress Coordinator
INCE Business Office

7150 Winton Drive, Suite 300

Indianapolis, IN 46268, USA

Telephone: +1 317 735 4063

E-mail: ibo@inceusa.org

ACTIVE 09, the 2009 International Symposium on Active Control of Sound and Vibration will immediately precede INTER-NOISE 09.

Directory of Noise Control Services

Information on listings in the Directory of Noise Control Services is available from the INCE/USA Business Office, 210 Marston, Iowa State University, Ames, IA 50011-2153; +1 515 294 6142; Fax: +1 515 294 3528; IBO@inceusa.org. The price is USD 400 for 4 insertions.

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Mark your calendar and plan to participate!

Inter-Noise 2009

Ottawa, Canada
23–26 August, 2009

Ottawa, Canada, will be the setting for the 38th International Congress and Exhibition of Noise Control Engineering (Inter-Noise 2009). The annual Congress opens 23 August with a special ceremony, lecture and reception, and continues through 26 August. Several plenary sessions and hundreds of papers on various aspects of noise control will be presented during the four-day event. A large vendor exposition will be held during the congress and the ACTIVE09 Symposium will be held immediately before the congress.

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NOISE-CON 07 CD-ROM

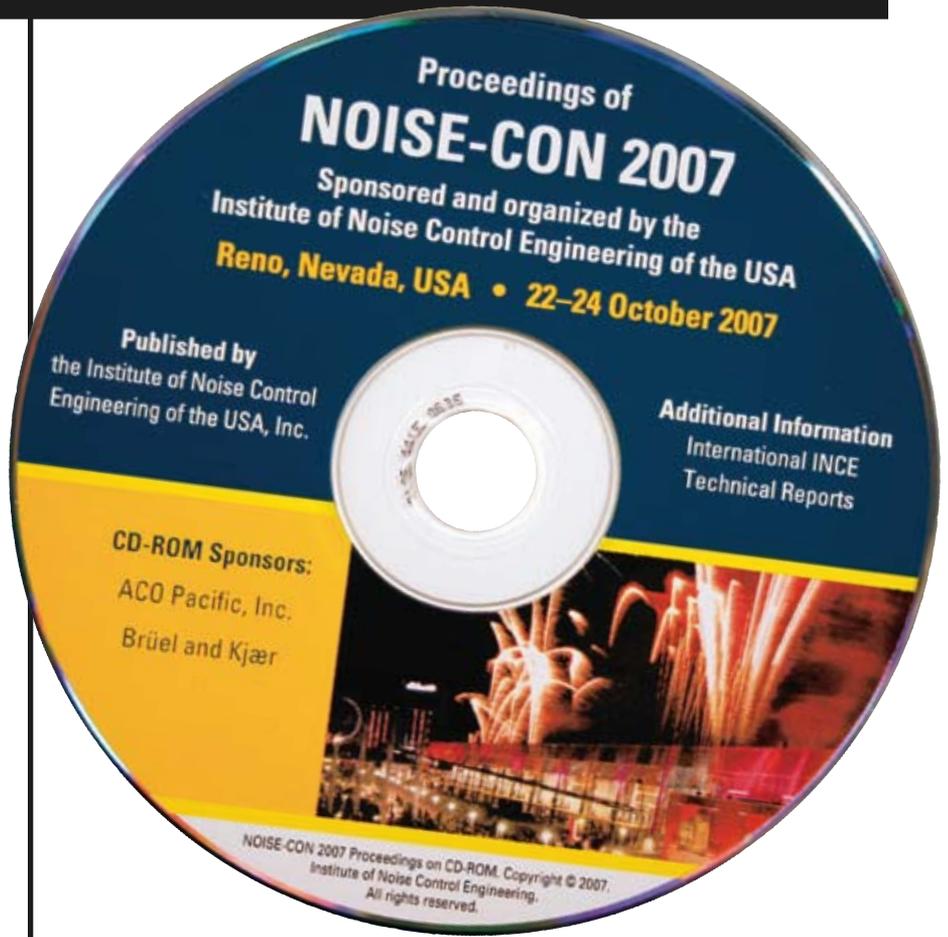
This searchable CD-ROM contains PDF files of the 188 papers presented at NOISE-CON 07, The 2007 National Conference and Exposition on Noise Control Engineering. NOISE-CON 07 was held in Reno, Nevada, USA on October 22-24, 2007. Also included on the CD are four reports published by the International Institute of Noise Control Engineering.

This CD-ROM supplements the NOISE-CON 05 CD-ROM which contains all of the papers published in NOISE-CON Proceedings beginning in 1996.

Below is a partial list of topics covered at NOISE-CON 07.

- Information technology equipment noise
- Tire/pavement interaction noise
- Noise control for hospitals
- Automotive noise
- Active control of noise
- Sound quality
- Noise from mining equipment
- Community noise
- Vibration damping for noise control
- Aircraft interior noise
- Noise control for schools
- Fan noise
- Noise from transit systems
- Sound insulation in buildings

These papers are a valuable resource of information on noise control engineering that will be of interest to engineers in industry, acoustical consultants, researchers, government workers, and the academic community.



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