



European noise at work summit — ‘Stop that noise!’

Closing event of the European Week for Safety and Health at Work 2005

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1. INTRODUCTION

The 2005 noise at work summit was jointly organised by the European Agency for Safety and Health at Work⁽¹⁾ and the United Kingdom Presidency of the European Union⁽²⁾ as the culmination of the 2005 ‘Stop that noise!’ campaign on the eve of the 2003 noise directive⁽³⁾ coming into force. EU policy-makers, social partners and leading safety and health experts met to consider worker protection from occupational noise and to reward organisations that have already managed to implement effective solutions.

The summit aimed to give stakeholders an opportunity to discuss challenges and future strategies for a better control of noise at work and to provide an overview of the different measures and good practices applied across Europe to tackle this issue, with a view to the implementation of the 2003 noise directive in Member States.

Although progress has been made in reducing exposure to noise over the years, challenges remain. The purpose of the summit was to explore these challenges and facilitate an exchange of expertise and experience, providing all parties involved in occupational safety and health a common platform on which to share their own perspectives and viewpoints, and propose effective solutions.

The event combined a mix of policy-level discussion and the identification of good practices in risk prevention. This

⁽¹⁾ <http://osha.europa.eu>

⁽²⁾ <http://www.eu2005.gov.uk>

⁽³⁾ Directive 2003/10/EC of the European Parliament and of the Council of 6 February 2003 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (noise) (Seventeenth individual directive within the meaning of Article 16(1) of Directive 89/391/EEC) OJ L 042, 15.2.2003, 38–44.

publication brings together the key points made in the many presentations and discussions made in the summit.

European Week 2005 — Noise at work

With the tagline, ‘Noise at work — it can cost you more than your hearing’, the European Week for Safety and Health at Work in 2005 focused on the issue of noise at work. The Europe-wide campaign was launched on 20 April 2005 — International Noise Awareness Day — to tackle one of Europe’s most persistent workplace health problems. Backing for the campaign came from all Member States, candidate and EFTA countries, the Luxembourg and United Kingdom EU Presidencies, the European Commission and Parliament, trade unions and employers’ federations. The campaign’s focus was the annual European Week for Safety and Health at Work on 24–28 October 2005.

2. OPENING SESSION



Hans-Horst Konkolewsky opens the summit.

Chairing the opening session of the 2005 European noise at work summit was **Hans-Horst Konkolewsky**, Director of the European Agency for Safety and Health at Work. He said that society and companies often see noise as a necessary evil and do not consider it a direct threat to health and safety. The objective of the Agency’s campaign and the summit is to send out a clear message, that European policy-makers, Member States, social partners and the whole occupational safety and health (OSH) community are determined to tackle the issue of workplace noise.



'European policy-makers, Member States, social partners and the whole OSH community are determined to tackle the issue of workplace noise.' — Hans-Horst Konkolewsky

Noise-induced hearing loss (NIHL) is still one of the most commonly reported occupational diseases, but noise is not only about hearing loss. It can be a causal factor in workplace accidents, it can interact with chemical agents and increase their impact on health, it can be a causal factor in occupational voice loss and it can harm a worker's unborn child.

Europe's OSH community is determined to tackle the issue, reduce the tragic consequences of occupational noise, and increase Europe's productivity by creating a strong prevention culture. The summit offered an opportunity to discuss the challenges and share practical solutions for control of noise at work.

Sayed Khan, Health and Safety Commissioner^(*), representing the UK Presidency, welcomed the participants, noting that occupational noise is a problem affecting many workplaces throughout the EU. He said 'noise-induced hearing loss cannot be treated, cannot be reversed, but it is completely preventable'.

'It is unforgivable for employers to expose their workers to hazardous levels of noise.'
— Sayeed Khan

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The new European directive on noise is a proportionate response to this problem, stated Dr Khan. It clearly sets a hierarchy of actions to take. It is recognised that employers would be faced with extra costs in providing the necessary preventive measures but costs should be seen against the benefits. There will be benefits in reducing the costs of compensations, in reduction of some work-related accidents and in reducing the suffering of employees.

The UK Health and Safety Commissioner went on to say that health and safety needs to be seen as a benefit, not a burden; it is an investment, not a cost. Good regulation is important. Good regulation is proportionate to the risks that have to be managed and is effective in delivering the outcomes we are trying to achieve. The new directive on noise is an example of good regulation: good laws, proportionately implemented and enforced and complemented by simple best practice guidance is the way forward.

The solution to the problem of noise is complex but achievable through working in partnership using a flexible range of tools. This will persuade people and organisations to seek genuine health and safety improvements rather than just viewing it as a peripheral issue, because health and safety needs to be seen as a business benefit and not as a burden.

Dr Khan emphasised that the Agency plays a key role in sharing good practice and in helping to ensure that measures to reduce noise exposure actually work and are cost effective. The European Week and summit are examples of how sharing good practice will help to ensure implementation of the directive to reduce hearing impairment across the EU.

(*) <http://www.hse.gov.uk/aboutus/hsc/index.htm>



Sayed Khan Speaks on behalf of the UK Presidency.

Joseba Azkarraga Roderio, Minister for Justice, Employment, and Social Security, in the Basque Government^(†) stressed that cooperation between various stakeholders was very important. He pointed out that actions could only be effective if employers, workers, public administration and researchers all work together.

Walter Cerfeda, Confederal Secretary of the European Trade Union Confederation^(‡) (ETUC) emphasised that sustainable development and growth should be linked with the health and safety of workers.

Kris de Meester, from the UNICE^(§) health and safety working group outlined the challenges related to combating noise at work, emphasising the importance of balancing economic cost and prevention. He stressed the importance of good guidance that deals with all levels, from the conception of workplaces to the use of personal protective equipment and the role of attitude and responsibility. The importance of protecting young workers from the risks of a noisy environment was also stressed.



The participants at the opening session.

3. WORKSHOPS

Three morning workshops provided an opportunity to hear experts discuss a range of topics related to noise and to raise issues and question the speakers. The workshops were not intended to be a one-way flow of information and significant time was put aside for a free discussion. A representative of the social partners present on the Agency's management board chaired each workshop.

(†) <http://www.euskadi.net>

(‡) <http://www.etuc.org/>

(§) <http://www.unice.org>



Workshop 1 — Noise in the entertainment sector, chaired by Fergus Whelan (Irish Congress of Trade Unions) ⁽⁸⁾

Esko Toppila, of the Finnish Institute of Occupational Health ⁽⁹⁾, described the health risks in the entertainment sector. Noting that musicians are not the only workers in the sector exposed to noise, he said that exposure from classical music can vary from 86 to 96 dB, while for rock music the exposure levels are typically higher and can exceed 100 dB.

For musicians, hearing is a major tool to control the quality of playing, so musicians are aware of the consequences of hearing impairment. It has been shown that hearing loss, hyperacusis and tinnitus have a significant impact on the quality of life of musicians, increasing work-related stress and reducing work motivation even in the absence of significant changes in the audiogram.

Many studies have shown that classical musicians have less hearing loss than would be predicted from their exposure, but this does not indicate that music is less harmful than industrial noise, rather that musicians have a reduced susceptibility to noise compared to industrial workers. However, a high prevalence of tinnitus and hyperacusis exists, affecting over 60 % of musicians.

When hearing impairment starts among musicians, the use of hearing protectors increases, but is still far from 100 %. Rock musicians use hearing protectors more than among classical musicians, which may mean that the noise exposure of rock musicians may be smaller than that of classical musicians in spite of higher sound levels.

Technical staff and support workers such as bar staff are highly affected by hearing impairment because of the loss of speech intelligibility in noisy environments, while the use of ordinary hearing protectors is problematic as these too reduce speech intelligibility. For technical staff with hearing impairment, the use of communication devices poses an additional risk because in order to hear they increase the volume 10–20 dB higher than the level used by those with normal hearing.

Kim Kähäri, from the Swedish National Institute for Working Life ⁽¹⁰⁾, described the 'sound design project' for reducing noise exposure in small music clubs. At a typical club where rock and modern music for young people was played several times per week, the project sought to create a healthy work and musical environment with quality sound without diminishing the musicians' or audiences' experience. Several musical event organisers and musicians thought it impossible to meet national noise regulations in a small music venue with the audience in close proximity to the stage. The project goal was that the music and entertainment business should live and flourish without anyone, whether worker or audience, suffering hearing disorders.



Noise sources in a small rock club.

⁽⁸⁾ <http://www.ictu.ie/>

⁽⁹⁾ <http://www.ttl.fi>

⁽¹⁰⁾ <http://www.arbetslivsinstitutet.se/>

The objective was to keep an equivalent A-weighted sound level of maximum 100 dB L_{Aeq} and 115 dB(A) maximum level at live music performances without inhibiting the musical articulation of the performers.

The existing stage was rebuilt and monitors on stage were lifted and directed towards the musicians' ears. Absorbents were mounted on walls and roof. The bar was moved from the concert room. A new distributed loudspeaker system with four speakers placed in the roof resulted in a much smaller risk for the audience of standing close by. The distributed system resulted in a small sound level variation in the venue. Sound levels from live concerts were greatly reduced after the intervention and showed sound level values below the recommended ones. The house sound technician was educated in sound level measurement techniques.

The attitudes concerning the sound quality and sound levels were explored from both performers and audiences, before and after the intervention in the club, using a questionnaire. This showed overwhelmingly positive reactions not only from the audience and musicians but also from other workers in the venue.

Dr Kähäri related that a very important part of the project was to spread the results and knowledge of the project and that this particular venue would act as a reference club for educating people and in other future projects.

Gabriele Fröhlich, from the Austrian Labour Inspectorate, Federal Ministry of Economics and Labour ⁽¹¹⁾, reported on work done on noise reduction in orchestras. In 2003, the Austrian Labour Inspectorate carried out investigations in concert halls and rehearsal rooms of orchestras and military bands, after having previously taken measurements in symphonic orchestras. The investigation used questionnaires (filled in by the employers) to find out information on exposure times, risk assessment, and noise measurement, and the extent of information provided to workers.

Investigation of noise reduction work in orchestras

Number of...	Orchestras	Military bands
Organisations visited	15	9
Musicians covered (male/female)	995 (769/226)	429 (423/6)
Organisations where sound intensity measurements made	6	4
Organisations offering ear protection to musicians (between 10 and 50 % of those with PPE were wearing it regularly at least at the rehearsals)	6	4
Organisations where health surveillance was organised	3	7
Locations where constructional measures taken (concert halls/rehearsal rooms) (*)	12 (5/7)	5 (0/5)
Locations where other preventive measures taken (concert halls/rehearsal rooms). These measures included acrylic glass walls next to the drums, and separate rehearsal room for the percussion.	19 (11/8)	3 (0/3)

(*) In nine cases the orchestra owned neither the concert hall nor the rehearsal rooms.

The results of the work indicated that the average exposure time in a workplace where the employer is responsible could be assumed as 4 hours per day, excluding private rehearsal. Deficiencies were found with risk assessments in Austrian orchestras, and while health surveillance should be obligatory, this was an issue of controversy amongst the musicians.

⁽¹¹⁾ <http://www.bmwa.gv.at/>



Dr Fröhlich related that there had been discussion on available measures of noise reduction and how they may be implemented in different rooms, situations, and with different instruments. The measures include constructional measures (for example, design and acoustics of rehearsal rooms, having particular instruments in their own rooms, the podium, spacing between musicians, and room acoustics), technical measures (such as electronic amplifiers, indicators of sound intensity, screens), work organisation measures, information, training, and personal hearing protection.

Pauline Dalby, International Federation of Musicians⁽¹²⁾, and **Mirjam Coronel-Timmermans**, Association of Dutch Orchestras⁽¹³⁾ led the discussion in this workshop. It was observed that all attempts to reduce noise in the entertainment sector face the unique situation that sound is the product in this industry and not a side effect to be eliminated. The task is to make this product safe for all involved, always keeping in mind that although music is 'nice' noise, it is still noise with the potential to cause serious damage, not just for the musicians and the audience but also for the wide variety of workers employed in this sector. For musicians, acute hearing is a prerequisite for their work — hearing loss can mean loss of livelihood.

Technical solutions exist to address the problem, but can face some resistance in the industry. Re-designing a small music venue, for example, without adversely affecting the audience's enjoyment requires the concerted effort of all involved. A key figure here is the sound mixer, who is usually self-taught. Training the sound mixers is vital for spreading the message of noise reduction. With a change of stage layout, improved amplifier placement and installation of absorbent surfaces, significant noise reduction can be achieved which, if followed by organisational changes like placing bar work areas outside the concert rooms, much can be done for the health protection of the workers.

To reduce the risk of hearing loss for orchestral musicians a holistic approach needs to be taken. Construction measures for the orchestra pit and the rehearsal rooms, technical measures like screens, organisational changes concerning rest periods and, as a last resort, hearing protection are all required to tackle this problem.

There is a challenge in addressing age-old traditions and institutions. For example, opera houses are often amongst the most beautiful and revered buildings in a town, which makes extensive rebuilding difficult. However, technical and organisational advances are being made, for example with the development of better screening.

Workshop 2 — Addressing the noise trends, chaired by Daniel Podgórski (Central Institute for Labour Protection — National Research Institute, Poland)

Elke Schneider, project manager at the European Agency for Safety and Health at Work, reported that exposure to loud noise in Europe is not notably rising. In selected sectors, women can be considerably exposed to noise, with the percentage of women reporting noise exposure being much higher in the new Member States than for the EU-15. However, data on noise exposure and related effects are particularly scarce in female-dominated sectors such as the hotel and restaurant sector and healthcare. The same is true for the transport sector.

NIHL is still one of the most recognised occupational diseases in the Member States of the European Union. According to a study by EUROGIP⁽¹⁴⁾, the cost of hearing loss due to noise represents about 10 % of the total cost of compensation of occupational diseases⁽¹⁵⁾. The trend of recognised incidence of hearing loss varies, depending on country and recognition policy. While in some countries figures are slightly decreasing, they are more or less stable and even

increasing in other countries. The number of occupational illnesses reported is also influenced by the level of impairment that makes the injured person eligible for financial compensation.

Hearing loss can also be caused or made worse by the use of chemicals. Known ototoxins include solvents, metals and asphyxiants. Many sectors with high exposures to noise also have high exposures to dangerous substances and vibrations. Some are also more predominant in the new Member States than they are in the EU-15. Several studies have assessed these combined effects, but the results are still awaited from major EU-funded research projects.

Tinnitus often accompanies NIHL, yet data on tinnitus is scarce, and there is a need for further monitoring to help assess the dimension of the problem throughout Europe. Call/contact centre telephone operators are thought to be the type of workers most at risk of acoustic shock, the physiological and psychological symptoms a person may experience after hearing a sudden, unexpected, loud sound, usually via a telephone headset or handset.

There is evidence of several non-auditory health effects due to noise, including voice problems, stress, cardiovascular diseases, and neurological issues. The importance of the voice as an occupational tool is also growing with the development of voice-activated technology and the increase in the number of individuals working in call centres, where vocal demands are high.

Palle Voss, of Akustiknet A/S⁽¹⁶⁾, Denmark reported on the project on noise in schools and day care centres. This is a difficult subject area as the noise source can be difficult to control. High noise levels in the education environment produce a range of effects, from NIHL to impaired learning ability.

An investigation in 1997/8, followed up in 2003, examined noise exposures for workers in day care centres for children aged 3 to 12. Over 50 % of nurseries and kindergartens were estimated to have average noise exposures over 80dB(A). The 2003 study showed a statistically significant lowering of results, but it was necessary to maintain a constant vigil on the exposure of workers to noise. A lot of effort is needed to convince people that taking care of children can be very noisy. To reduce noise you need to work with regulations, control, guidance and information. Noise reducing measures are usually hardware, but a change in educational attitudes is also required.

Vincent Planeau, from the French National Research and Safety Institute (INRS)⁽¹⁷⁾, France, described a study of noise hazards associated with the call centre industry. The results showed that the telephone installations observed are likely to generate high noise levels, and there was a lack of awareness of the noise risks in telephone operators. Additionally, ambient noise levels were noted at levels that caused operators to have to increase the volume on their headsets in order to hear the person to whom they are speaking. The study results show that 27 % of the operators having answered the questionnaire are daily exposed to more than 85 dB(A) and that 3 % of them are daily exposed to more than 90 dB(A).

Dr Planeau said that to reduce noise risk in the call centre industry, operators should receive information about noise effects and regular training on the headset and telephone equipment they are using. The walls and ceiling of the workplace must be treated with appropriate acoustic materials to reduce reverberation. The workplace should be sufficiently large to ensure 10 m² space per operator. INRS and the French National Scientific Research Centre (CNRS)⁽¹⁸⁾ are now carrying out a

⁽¹²⁾ <http://www.fim-musicians.com/>

⁽¹³⁾ <http://www.vnt.nl>

⁽¹⁴⁾ <http://www.eurogip.fr>

⁽¹⁵⁾ Period 1999–2001.

⁽¹⁶⁾ <http://www.akustiknet.dk>

⁽¹⁷⁾ <http://www.inrs.fr/>

⁽¹⁸⁾ <http://www.cnrs.fr/>





Noise interference in a teaching environment.

study on the use of active acoustic noise control techniques to reduce background noise level directly in the headset.



Call centres were a topic of debate in Workshop 2.

Sam Ironside, UNI-Europa⁽¹⁹⁾, and **Laurent Zylberberg**, France Telecom⁽²⁰⁾ led the discussion in this workshop. Data from the Agency's risk observatory⁽²¹⁾ show that many widespread assumptions related to noise at work are incorrect. Noise is certainly an 'old risk' but it is not a problem of the past with a quarter to a third of the workforce exposed at some stage (at least a quarter of the time) to high-level noise (29 % for EU-15, 35 % for new Member States). Noise is not only a 'male' problem either. In selected sectors, like the textile industry, food industry, education, call centres and healthcare, women can have significant exposure to noise.

Examples of typical noise exposures

- Day care centres for children: 75–85 dB(A)
- Hospitals: 62–105 dB(A)
- School workshops and sports areas: 80–105 dB(A)
- Bakery: 85–92 dB(A)
- Dairy: 85–95 dB(A)
- Construction: 75–110 dB(A)
- Agriculture: 70–102 dB(A)

Noise goes beyond traditionally 'loud' industries — it can affect millions of workers in the service sector (entertainment, education), and in some new occupations like call centre operators. The operators are exposed to high noise levels and may be unaware of the potential risk of hearing damage when the headsets are used at high levels.

⁽¹⁹⁾ <http://www.union-network.org/UNISite/Regions/Europa/Europa.html>

⁽²⁰⁾ <http://www.francetelecom.com/>

⁽²¹⁾ <http://riskobservatory.osha.europa.eu>

Nor is noise only an issue for older workers; increasingly young workers appear to be affected by exposure to loud noise. For example, call centre operators are mostly young and female workers. Despite the fact that noise at work is a known occupational health problem, more research and further information gathering is needed, especially in the services sector, and in new occupations.

A range of different noise control approaches has been found in studies on workplace noise control measures. However, smaller companies had very limited noise control procedures and relied heavily on personal protective equipment.

Further efforts are needed to reduce noise in workplaces and to effectively lower emission levels of loud machinery. Whereas some measures address noise at the source (such as noise reduction of machinery), room acoustic measures should also be kept in mind. More data collection is also needed on the design for noise reduction in the services sector, and for 'new' occupations.

There are also some emerging issues which need further research, such as acoustic shocks and exposure due to new technologies (headsets in call centres), combined exposure with ototoxic substances and with vibration, noise exposure in classrooms, background noise decreasing the audibility of informative signals, noise exposure below limit values but which leads to fatigue and inefficiency, and noise during pregnancy.

Workshop 3 — Choosing the quiet option, chaired by Joe Delia (Malta Employers' Association)⁽²²⁾

Pietro Nataletti, from the Italian National Institute for Occupational Safety and Prevention (ISPESL)⁽²³⁾, spoke on the information needs for people procuring work equipment and machinery. He noted that an effective procurement process could significantly reduce the exposure of workers to noise, particularly relating to the purchasing of work equipment and machinery. Buying 'quieter-noise' equipment and plant can be a cost-effective solution to dealing with noise challenges.

A four-stage process that management can implement to have an effective 'buy quiet' policy can be described as follows:

- select the processes, products, or operations to be targeted for noise reduction through procurement;
- set criteria for the new equipment and machinery noise levels;
- request noise level specifications from the manufacturer and include this noise level data in the risk assessment process;
- take input from workers and their representatives.

Before purchasing new machinery, there should be an investigation as to whether there are alternative quieter technologies and working procedures available to carry out the same task.

The minimum information to be required from potential suppliers at the time of the purchase of machinery includes the following data on noise emissions:

- sound pressure levels declared in the workplace and the C-weighted peak level;
- the declared sound power level (A-weighted);
- reference to the technical standard used for the measurement of values.

⁽²²⁾ <http://www.maltaemployers.com/>

⁽²³⁾ <http://www.ispesl.it/>



Examples of quieter alternative working methods

'Traditional' method	Quieter alternative method
Cutting by metallic punching	Cutting by laser
Axial ventilators	Centrifugal ventilators
Percussion riveting	Compression riveting
Drying by air flow	Drying by thermal radiation
Pressing with mechanical press	Pressing with hydraulic press
Cooling by compressed air	Cooling by liquid

Information needs for those procuring work equipment and machinery can be fulfilled by the new good practice manual for noise control at the workplace from ISPEL. These guidelines have the aim of:

- assessing the reliability and availability of current methods of noise control in the workplace;
- providing information to employers, workers, health services, and other users;
- providing a database of technical standards, materials and technologies available for noise absorption, damping, and isolation.

In such a way, information and methodologies normally diffused within the limited context of the acoustic experts will be made accessible to the national community and, in particular, to employers and management to avoid or reduce the risks arising from noise exposure at work.

Ewa Kotarbinska, from the Polish Central Institute of Labour Inspection — National Research Institute (CIOP-PIB)⁽²⁴⁾, spoke on personal hearing protection as the last resort. The 2003 noise directive gives exposure action values of noise when the employer has to make hearing protectors available to workers and when hearing protectors must be used, and stresses that using hearing protectors is the last resort, when the risk arising from exposure to noise cannot be prevented by other technical means.



If at a work-stand the noise exposure exceeds the lower exposure action values the employer should make hearing protectors available for workers.

When selecting personal hearing protection, the following issues should be considered:

- the importance and meaning of choosing hearing protectors granted the CE certification mark;
- selection according to hearing protector's attenuation;
- selection according to environmental conditions, work activity and their special tasks;

⁽²⁴⁾ <http://www.ciop.pl/>

- compatibility of hearing protectors with other personal protective equipment;
- the importance of the selected hearing protector meeting the requirements of any medical disorders;
- selection of a hearing protector which is suitably comfortable and accepted by the worker.

The problem of a real-world attenuation of a hearing protector, which is lower than attenuation obtained from tests conducted in a laboratory for certification purposes, is discussed. This effect can be caused by:

- badly fitting hearing protectors due to long hair, wearing other personal protective equipment, or other obstacles;
- ageing of hearing protectors over time;
- differences in acoustic conditions between a laboratory test site and a workplace.

Dr Kotarbinska described how having a short break from wearing hearing protectors while exposed to noise caused a significant decrease in the level of effective protection.

Ivars Veits, from the Latvian Acoustics Association⁽²⁵⁾, discussed noise prevention at source, which is the best and most effective possibility to reduce the noise emission in general. In his technical presentation, Dr Veits demonstrated a number of methods for controlling noise at sources in a variety of industrial situations. Three methods in particular were discussed:

- sound insulation and damping by means of an enclosure for the sound source;
- application of composite panels to decrease noise radiation;
- use of resonance absorbers in the proximity of sound sources.

Case study of noise reduction on a wood planing machine

A great part of the total noise generated by planing machines comes from the rotating and parallel to the shaft located plane irons. Passing the table edges of the planing machine the irons are 'chopping' the flow field of air, generating intensive noise. The solution is to use plane irons shaped in the form of a helix. Additionally, by having recesses at the table edges (for example, drilled holes and slotted perforations) an additional reduction of the noise level (up to 10 dB(A)) can be achieved as a result of a compensation of aerodynamic forces.

Dimitris Goulielmos, Europeche⁽²⁶⁾, and **Jesús Uzkudun**, Comisiones Obreras (CC.OO), Euskadi⁽²⁷⁾ led the discussion in this workshop. Mr Goulielmos recounted the challenges facing Europe's maritime sectors, in particular relating to its ageing fleets. In the fishing industry, where prolonged exposure to noise is unavoidable, the design of the vessels plays a crucial part in noise reduction. The major challenge to the fishing industry however, claimed Dimitris Goulielmos, lies not only in a 'buy quiet' investment in modern ships, but in educating fishermen and small-scale and large-scale shipowners of the risks associated with exposure to noise, the outcome of which is not immediately visible. Mr Uzkudun added that the key to resolving the problem of lack of awareness lies in translation of law into practice through a concerted effort by all stakeholders and the responsibility of trade unions in the training and education of workers.

⁽²⁵⁾ <http://www.eaa-fenestra.org/EAA Societies/Latvia-LAA/>

⁽²⁶⁾ <http://www.europeche.org/>

⁽²⁷⁾ <http://www.ccoo-euskadi.net/>



4. COLLOQUIUM

From practice to policy

A key ingredient to the success of the Agency's annual European Week finale is the integration of practical experiences with policy views. At the start of the colloquium, **Luis F. Do Nascimento Lopes**, Chairperson of the Agency's governing board, introduced the outcomes of the morning workshops. These were presented by **Fergus Whelan**, (workshop 1), **Daniel Podgórski**, (workshop 2), and **Joe Delia**, (workshop 3).



The chairs make their report.

Conclusions of workshop 1 — Noise in the entertainment sector

- A wide variety of workers are employed in this sector, not just musicians, and the careers of these workers are at risk from occupational ill-health relating to noise. Acute hearing very important for a musician and technicians.
- A nice noise is still damaging.
- There is a high prevalence of tinnitus and hyperacusis in musicians.
- Technical and service staff such as sound mixers and bar staff risk hearing impairment as their need to communicate can expose them to high noise levels.
- Small music clubs present difficult venues for reducing noise exposure without adversely affecting the audience's enjoyment.
- In order to reduce worker exposure, while maintaining the effective performance of the music in the club, it is vital to have a multi-disciplinary team with multi-stakeholder involvement.
- Changing the layout of the club and the surfaces present in the club (for example, by mounting absorbent material on walls) reduces the noise exposures.
- Effective implementation of noise prevention measures led to positive feedback from both workers and clubbers.
- It has been found that risk assessments carried out are not always adequate when addressing noise risks.
- When implementing control measures, a holistic approach is required, with a range of prevention measures required, including:
 - construction measures (for example, rehearsal room design),
 - technical measures,
 - work organisational measures,
 - personal hearing protection.

- Health surveillance (audiometry) is important in the protection of workers from noise risks in the sector.
- It is noted that the entertainment industry is perhaps unique in that it is a deliberate noise generator.
- The social partners in the industry want the 2003 noise directive, but realise that there are challenges in its implementation.
- The sector is aware of what needs to be achieved, but there is much work ahead requiring the cooperation of all stakeholders.
- While technical solutions exist and are beginning to be implemented, there is a need for more technical innovation.
- There is a growing awareness of the risks arising from noise, and young musicians are particularly receptive, but there is some resistance to overcome. More information and training is needed, particularly for addressing specific groups such as self-educated sound technicians.
- An information exchange is needed, along with common standards and guidelines.

Conclusions of workshop 2 — Addressing the noise trends

- 'Traditional' noise exposure remains a problem.
- Young workers seem to be getting increased exposure to loud noise.
- Data is lacking on exposure to noise in female dominated sectors such as healthcare.
- Different management approaches to noise control exist, but small and medium enterprises may have very limited procedures and rely on personal protective equipment (PPE) such as earplugs.
- Research results show that noise exposure for those working with children can be comparable to that of industrial workers.
- Noise reduction measures should be included at the design stage of educational facilities.
- To ensure the effective prevention of noise exposure in the education sector, it is necessary for noise control to be a permanent issue for consideration, in particular with regard to providing information.
- If children and young people get 'used' to high noise levels it may lead to a later price to pay.
- Research has found a lack of awareness of noise risks among call centre operators.
- Background noise causes operators to raise volume of headsets.
- About 25 % of workers surveyed had daily exposure over 85 dB(A).
- Key prevention measures include:
 - information and training,
 - acoustic improvements to the workplace.
- Active acoustic noise control is being investigated as a potential preventive measure.
- There is a lack of information and awareness of the risks from noise at work.
- Young workers and female workers are not traditionally considered as exposed: call centre operators are mostly young and female workers.
- There is a need for guidance and support to enterprises for implementation of the 2003 noise directive.



- Social dialogue and cooperation is vital to achieve positive outcomes.
- There is a need to harmonise data between Member States.
- Noise should be seen in a wider context of working conditions and health and safety of workers.
- The framework directive⁽²⁸⁾, with its general duties on employers, was seen to be of high importance. In particular:
 - the requirement for holistic risk assessments to be carried out;
 - to provide training regarding risks and use of work equipment such as headsets.
- It was questioned whether prevention services are efficiently used to transmit OSH information.
- There is a need to address combined exposure to several risks, and exposure to middle-level noise.
- Statistical tools need adaptation to enable trends to be followed in 'new' sectors such as services.
- There is a need to consider information from sources outside the occupational safety and health community to provide a comprehensive picture of the problem.

Conclusions of workshop 3 — Choosing the quiet option

- Employers should have a 'buy quiet' policy for work equipment as part of a structured prevention policy.
- Directive requirements⁽²⁹⁾ on manufacturers and suppliers exist to help buyers apply this policy.
- Care should be taken as the actual noise levels during operation may differ considerably from those levels provided by the manufacturers manual.
- The 2003 noise directive identifies when personal hearing protection must be available and used, and there are supporting standards on how to choose and use such protection.
- Attenuation is less in the real world than in laboratory tests. This should be taken into account when choosing hearing protection.
- Failure to wear hearing protection throughout working time significantly reduces the effectiveness of the protection.
- Preventing noise at source is the best method to reduce noise emissions in general.
- Small design changes (for example, changing the shape of a cutting tool) in the work equipment can have significant results.
- There are many existing effective measures for decreasing noise at source.
- Active noise control systems (ANC or 'anti-noise') can be an effective prevention method.
- In the fishing sector, working times are very long, resulting in large noise exposures. Ship design is crucial to noise reduction.
- Workers are not aware of the noise hazard as it is invisible. Until awareness is raised, then it is difficult to implement solutions.
- Unions have a key role in the training and education of workers. Employers need training too, especially in small businesses.

⁽²⁸⁾ Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work

⁽²⁹⁾ E.g. Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors.

- There is a need for effective inspection and enforcement. The Commission should ensure proper implementation of directives.
- There is a concern that the view of the social costs of noise (for example, health costs) is being lost with too much focus on the direct economic cost for manufacturers and employers.
- There should be focus on the benefits of noise reduction, not on the cost.

Round-table discussion

Following the reporting of the discussions from the morning workshops, a distinguished panel was invited to consider what they had heard, and other issues relating to the prevention of risks from noise at work. The moderator stimulated the discussion from the panel, augmented by questions from the conference floor. The discussion was lively and wide-ranging, and can be summarised as follows.

The discussion panel

- **Bernhard Jansen**, Director, European Commission, Adaptability, Social Dialogue and Social Rights⁽³⁰⁾
- **Sayed Khan**, Health and Safety Commissioner, UK Presidency of the Council
- **Walter Cerfeda**, Confederal Secretary, ETUC⁽³¹⁾
- **Kris de Meester**, UNICE Health and Safety Working Group
- **Patrick Kurtz**, Head of Unit, BAUA⁽³²⁾, Germany
- **Bertil Remaeus**, Member of the Committee of Senior Labour Inspectors (SLIC)⁽³³⁾ and vice-chair of Agency's governing board, Sweden
- **Dennis Abbott**, Committee of the Regions (moderator)

Noise — a challenge to small and medium-sized enterprises

Noise is a 'classic' hazard, well known as a cause of harm, but there appears to be an increasing understanding of all the ways in which noise can act in the workplace. The key to successful noise prevention lies in a good regulation and targeted enforcement of the law, complemented by good guidance and sharing of information on best practices of noise prevention measures between Member States.

Information on noise prevention must be clear and well adapted to the target group. There was much discussion on what can be done to help small and medium-sized enterprises, with a consensus that while enforcement is necessary, good guidance and information is even more important. The role of the European Agency for Safety and Health at Work was seen as crucial in helping small businesses to comply with the new directive by gathering and disseminating information and good practice. However, it was noted that the Member States bear the primary responsibility for the implementation of the new directive.

⁽³⁰⁾ http://europa.eu.int/comm/staffdir/plsql/gsys_www.branch?pLang=EN&pid=185&pDisplayAll=1

⁽³¹⁾ <http://www.etuc.org/>

⁽³²⁾ <http://www.baua.de/>

⁽³³⁾ http://europa.eu.int/comm/employment_social/health_safety/slic_en.htm



Good procurement practice — an effective prevention measure

Good procurement practice in the purchase of work equipment is an effective means of reducing workers' noise exposure. European directives, implemented in Member States, exist to assist purchasers in selecting quieter machinery. One point, strongly made, was that Member State governments have massive procurement budgets. As a result, they have a huge influence and should use it.

It was felt that many employers do not have sufficient knowledge to select quieter machines, and that a good tool would be a database providing the buyers with the necessary advice on the purchase of quieter work equipment.

In spite of the numerous regulations regarding the manufacture and purchase of 'noiseless' equipment, one of the key challenges for manufacturers in the EU today is global competition and a lack of market surveillance.

Enforcement — the key?

The enforcement of occupational safety and health legislation is never simple, particularly so when addressing a 'complex' hazard such as noise. The issue of transition periods and exemptions/exclusions further complicates enforcement. The introduction of a two-year transition period following implementation of the 2003 noise directive sparked much debate over whether, in the final analysis, the directive can really be effectively implemented across all sectors.

Challenges in the entertainment sector

The entertainment sector faces the challenge of dealing with a noise that is the product rather than an unwanted byproduct. This concept can make it difficult to educate those in the sector about the need to address the occupational safety and health risks arising from noise.

This underlines the need to search for creative solutions for noise protection in industries where noise becomes part of the desired product. There is also a need to re-examine the effectiveness and methods of educational programmes with respect to communicating the health risks of noise exposure to groups such as adolescents, musicians, and entertainers.

Protecting young workers

The panel expressed concern about the exposure of young persons to noise. This exposure is not just from workplace noise

but also environmental noise — whether traffic noise or noise from personal music systems.

It was revealed that the Agency's European Week 2006 is on the theme of young workers, and the panel expressed the desire that the 2005 campaign on noise at work be linked into the 2006 campaign.

5. CONCLUSIONS AND PERSPECTIVES

Vladimír Špidla, European Commissioner for Employment, Social Affairs, and Equal Opportunities ⁽³⁴⁾, made the keynote speech at the noise summit.

Closing the event, the Commissioner welcomed the summit, coinciding as it does with the implementation of the 2003 noise directive, as an opportunity to examine and discuss the challenge of, and solutions to, the hazard of noise at work. He said that the aim of the directive is to have a clear prevention strategy to protect workers' health and safety, focused on the elimination or minimisation of the risk at source.

After setting out the risks to workers from noise, and the scope to which it is a problem in Europe, Commissioner Špidla said that the European Commission has an objective to improve employment quality, and this has to involve workers and employers in all sectors without exception. In the noisiest sectors, employers, workers, small and medium-sized enterprises, enforcing authorities and insurance systems all have to protect the workers' health.

The European Commission is preparing a good-practice guide to help the entertainment sector where the workers are particularly exposed to high levels of noise. This guide should be available at the beginning of 2007.

Solutions exist to reduce noise, including good acoustics (such as using sound-absorbent materials), an effective purchasing policy for quieter machinery, and where necessary, personal hearing protection.

The Commission's action is under the framework of the Community strategy on occupational safety and health 'Adapting to change in work and society: a new Community strategy on health and safety at work 2002–06' ⁽³⁵⁾. This strategy has three pillars:

- a holistic approach to well-being at work;
- reinforcement of the prevention culture;
- recognition that absence of quality has costs and burdens on the economy and society.

The promotion of well-being in the workplace has also to take into account other Community approaches in areas such as work and employment, public health, the sale of new equipment, chemical products, as well as policies in areas such as transport, fisheries, and the environment.

The European Commission will propose a new strategy for 2007–11. This will focus on new risks and on the minimum levels of protection in the workplace. It will also look at the prevention services, training and legislation.

Closing his intervention, the Commissioner welcomed the good-practice awards winners and the highlighting of successful interventions to reduce the risk of noise to workers, and congratulated the winners on their achievements.



The distinguished panel.

⁽³⁴⁾ http://ec.europa.eu/dgs/employment_social/index_en.htm

⁽³⁵⁾ <http://osha.europa.eu/systems/strategies/future/index.stm>



'Noise is a growing concern all over Europe, in workplaces from factories and farms, to entertainment and services. More than 13 million workers are reported to have suffered impaired hearing at work. And noise goes beyond hearing problems. It can cause accidents, voice loss and increase stress levels. The new EU directive, to be implemented in all Member States by mid-February 2006, reduces the levels of noise to which workers can be exposed and requires employers to eliminate or reduce to a minimum the risks.' — Commissioner Špidla



The Commissioner delivers his keynote speech.

Hans-Horst Konkolewsky concluded the plenary session by saying that all workers can and must be protected from noise risks and that, with the support of new legislation, Europe stands now on the brink of new effort in controlling the risks arising from noise at work. There is recognition that noise is no longer only a risk in traditional work areas such as heavy industry or manufacturing. Sectors such as entertainment now face the challenge of protecting their workers. The changing world of work affects the patterns of workers' exposure to noise. These patterns should be monitored and new challenges and risks addressed as they appear.

The director of the Agency closed the summit by saying that it was time for a new partnership amongst all who play a role, at all levels, including social partners and governments. There is a need for awareness raising, practical guidelines — particularly for small and medium-sized enterprises, and targeted enforcement. All stakeholders have to take responsibility to address this old workplace hazard.

'Let us hope that we will need no more summits on noise at work in Europe!' — Hans-Horst Konkolewsky



The director closes the summit.

6. GOOD-PRACTICE AWARDS

The European good-practice awards for 2005 were given to the best practical solutions for the prevention of noise exposure. The winners include new low-noise concrete processing methods, from Germany and France, a nightclub design project, from Sweden, tools to protect farmers, from Denmark, a Dutch example of how to calculate the most cost-effective noise solution and a training project from the UK aimed at orchestral musicians. All the winning and commended examples are published by the Agency in paper and electronic format as a tool to assist other workplaces address their concerns over workplace noise ⁽²⁶⁾.

After a traditional Basque welcome and a speech from Ibon Areso, Teniente Alcade of Bilbao, the winners received their awards at the gala dinner.



Ibon Areso welcomes the award winners to Bilbao.

⁽²⁶⁾ <http://osha.europa.eu/publications/reports/6905812>



European Week 2005 good-practice awards — Winning and commended entries

Title	State	Issue
Noise reduction for automated standard lamp production line No 234	Hungary	Achieving noise reduction to prevent hearing loss along a complete production line in a light source factory
Participatory cooperation in preventing noise exposure in a planning and construction project for a new beverage plant	Finland	Designing out noise while meeting food hygiene requirements in the creation of a new production plant
Comprehensive noise reduction programme and exposure management in broadcasting	Finland	Reducing noise exposure in broadcasting through a holistic management programme
Converting a system for manufacturing concrete blocks to a new concrete compression procedure with 'harmonic vibration' (*)	Germany	Development of a low-noise method for concrete compression, based on harmonic vibration, that results in the broad impact vibration frequency spectrum usually produced by the vibrating process being converted into a single, easier to dampen, vibration frequency band
Introduction of noise management to enable the recording, implementation and evaluation of all opportunities for noise reduction	Austria	A structured management programme to reduce noise in mineral extraction
Hearing protection from military rifle shooting noise	Greece	Reducing noise exposure and other risks during the testing of weapons
Sound design in a typical rock club: an interventions project (*)	Sweden	Implementing technical and organisational measures aimed at reducing noise levels and staff exposure in a small club venue while guaranteeing a good sound quality
Away with noise! Reducing noise hazards in the workplace	Sweden	Communicating information and good practice by social partners
Reducing noise when manufacturing concrete vats by immersion of vibrating trestles in water (*)	France	Reducing noise in the manufacturing industry of prefabricated concrete units for construction purposes
Mechanism for preventing noise risk in an energy service company	France	Reducing noise exposure in maintenance operations in the energy sector
Making hypoacusis visible in the Basque Country	Spain	Campaigning to raise awareness of hearing loss to stimulate preventive measures
Noise reduction and acoustic improvement of the control room in the combined heat and power station – TE-TOL, Ljubljana	Slovenia	Addressing low frequency noise problems to improve 'human factors' at a power station
Courses for noise monitors	Denmark	Reducing noise in children's institutions
Noise in agriculture – Tools to evaluate exposure and find beneficial solutions (*)	Denmark	Addressing noise in agriculture (see box text)
The noise reduction factor (GRF) (*)	Netherlands	Calculating the most cost-effective noise reduction measure
The Voivodship programme of health promotion 'Corporate programme for hearing protection' for the years 2000-05	Poland	A regional programme to protect workers' hearing
Occupational noise reduction in certain power plant workplaces	Portugal	Prevention of worker exposure from noise in power plant electrical and mechanical workshops and other locations
Programme of prevention of exposure to noise	Portugal	Assessing the exposure of street cleaners in a large city
A Sound Ear: Training and awareness raising of noise exposure to musicians (*)	United Kingdom	Looking for ways to reduce the noise levels in rehearsal and performance environments in order to protect orchestral musicians' hearing
(*) Indicates award winner		



Noise in agriculture — tools to evaluate exposure and find beneficial solutions

This award winning example, submitted by the Sector Work Environment Council for Agriculture⁽³⁷⁾, Denmark, reported a systematic investigation of significant noise sources among dairy farmers, pig farmers and plant breeders and the production of tools to help employers and workers in agriculture to prevent and minimise harmful noise in the workplace.

In the 'Støj i landbruget' (Noise in agriculture) project, an investigation into noise sources in agriculture was carried out, measuring more than 60 noise sources at approximately 30 farms. The investigative method was based on checklists established with the aid of farmers and experts, and the results are published in the report 'Støj i landbruget — en eksempelsamling' (Noise in agriculture — case studies)⁽³⁸⁾.

Information concerning the results was given to the agricultural consulting profession at a feature day in February 2004. The feature day also contained information about general noise, harmful noise, and the prevention of noise exposure in agriculture.

A leaflet, entitled 'Støj i landbruget — er det et problem?' (Noise in agriculture — is it a problem?)⁽³⁹⁾ was published and distributed to workers in the agricultural sector. By reading the leaflet and going through the examples it is possible to make an assessment of one's own noise exposure.

An essential part of the project is the creation of an interactive website⁽⁴⁰⁾ about noise, directed at employees in agriculture. It has been translated into English in order to reach workers that do not speak Danish⁽⁴¹⁾.

⁽³⁷⁾ <http://www.barjordtilbord.dk/>

⁽³⁸⁾ http://www.barjordtilbord.dk/upload/081203_landbrugsrapportprint1.pdf

⁽³⁹⁾ http://www.barjordtilbord.dk/upload/st%C3%B8jfolder_a5grund_til_pdf.pdf

⁽⁴⁰⁾ <http://www.stojlandbruget.dk>

⁽⁴¹⁾ <http://www.agrinoise.com>

7. FURTHER INFORMATION

The European Agency for Safety and Health at Work has published a range of material relating to the issue of noise at work. This body of work includes reports, factsheets (in all official EU languages), and more detail on the content of the European noise at work summit. All this material can be accessed and downloaded free of charge from the Agency's website (<http://osha.europa.eu>).



Demand was strong for Agency products at the summit.

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