



Report on the 10th UIC Railway Noise Workshop, held 15 March 2016 in Paris

Around 79 delegates had come to Paris for the occasion of the 10th Railway Noise Workshop. The Workshop was moderated by **Mr. Jakob Oertli** (SBB), Chairman of the UIC Noise Expert Network. He introduced Mr. Jean-Pierre Loubinoux, Director General of UIC, for the welcome address.

Mr. Loubinoux reminded the audience that UIC was founded in 1922 and currently has 240 members in 200 countries around the world. Together they represent around 1 million km of track, 2,900 billion passenger-km and 10,000 tonne-kilometer, as well as 7 million staff. UIC is the Rail Sector's Technical Platform. Its mission is to promote rail transport and to meet the challenges of mobility and sustainable development. To this effect, Mr. Loubinoux is personally committed to these objectives, as is clearly demonstrated for example by his appointment to the United Nations High Level Advisory Group on Sustainable Transport.

Although rail transport is acknowledged to be the most sustainable mode of transport, noise remains the weak point. But a lot of work has been done to improve the situation. The EuropeTrain project, a testing programme with over 200 000 km of test run of wagons equipped with LL-type composite brake blocks across Europe, demonstrates that the rail sector is innovative and provides solutions. Concerns remain that the additional costs emerging from the technical innovations might endanger the competitiveness of the railways. The sensitivity for these questions is increasing, as will be illustrated by the contributions from CER and the European Commissions. Currently the focus is less on the competition between modes, but more on the complementarity and on optimizing the interfaces. A sustainable mobility is also a common objective.

Mr. Jakob Oertli thanked Mr. Loubinoux for his motivating words, thanked UIC for the organization of the Workshop and introduced the speakers.

The first speaker was **Mr. Marcin Wójcik** from the European Commission, Directorate General MOVE (Mobility and Transport). He memorized the importance of rail noise, and the growing concern that noise might stand in the way of the desired growth of rail traffic, for example 50% more rail freight in 2030. The EC has been active, for example with the introduction of the Environmental Noise Directive 2002/49/EC (the Directive is currently being reviewed under the REFIT procedure, as will be introduced by Mrs. Juraga). Under the Railway Interoperability Directive (2008/57/EC), the TSI Noise was adopted in 2005 and amended several times (last in 2015). The Commission Implementing Regulation 2015/429 regulates, on a voluntary basis, the introduction of Noise Dependent Access Charges, enhancing both introduction of new freight vehicles equipped with K-blocks and the retrofitting of existing wagons with LL-blocks. To the retrofitting objective, the Commission suggests the Connecting Europe Facility (regulation 1316/2013), which, in article 7, supports "Actions to reduce rail freight noise, including by retrofitting existing rolling stock", to 20% of the eligible cost. The next and second call for application is expected in Autumn 2016 and may cover some 20 million euro. DG Move would welcome applications from freight fleet owners, necessary to ensure the future continuation of this support option. DG Move is mostly concerned about ineffective, national initiatives and promotes an international, common approach. DG Move had a study carried out (<http://ec.europa.eu/transport/modes/rail/studies/doc/2014-05-rail-noise-ia-study.pdf>), which investigated a range of options for a common approach. The options and the preferences are specified in a Staff Working Document (ECSWD 2015/300). For the short to medium term, DG Move prefers introduction of NDTAC in combination with EC and national financial support, introduction of noise related standards for infrastructure (acoustic grinding and track maintenance) and gradual application of TSI noise limits to all wagons. For the longer term, DG Move is in favour of a "holistic" approach of environmental impacts from transports, i.e. to treat all transport modes in a similar way.



In the discussion about Mr. Wójcik's paper, **Mr. Dinhobl** (ÖBB) requested information about the way to check and enforce TSI limits for wagons in operation ("in service compliance"). Mr. Wójcik replied that a Task Force has been set up, which will address such implementation questions.

Mr. Roovers (ProRail) informed the audience, that The Netherlands currently holds the EU presidency, is committed to address the issue of rail freight noise, will bring this up during the TEN-T days (20 – 22 June in Rotterdam) and requests contributions to this issue and to the argumentation for supporting measures.

Mrs. Salawa (PKP Cargo) stressed that the application of TSI Noise limit values to existing wagons should apply only to wagons in international (i.e. cross border) traffic.

Ms. Ivana Juraga of European Commission DG ENV (Environment) presented an update on the EU Noise Policy. She presented the implementation review of the Environmental Noise Directive (END), which has given rise to several amendments of the Directive already implemented. The first revision refers to Annex II of the Directive, which describes the common assessment methods for noise exposure, to be applied for the production of Strategic Noise Maps. Before the revision, Annex II described the Interim Methods, to be applied until common methods would have been defined. In July 2015, Directive 2015/996 was published. This defines the full common method, also known as Crosso-EU. This method will be mandatory from 31 December 2018, in practice from the fourth round of noise mapping due in 2022. The Commission expects implementation issues that will be discussed with the Member States. [remark Paul de Vos: For railway noise, Annex II defines the noise attenuation for the propagation from the source to the received (including reflective paths) in a harmonized way. Source data (the "emission") is dependent on rolling stock and track characteristics and will have to be defined by the member state].

The second point of interest for DG ENV is annex III of the END, which defines the dose-response relationships for various sources of noise, thus allowing the assessment of the number of (highly) annoyed or sleep disturbed residents from exposure data. The relations currently presented in Annex III are based on the harmonized indicators L_{den} and L_{night} . The Commission intends to develop updated relationships, which may take into account other indicators such as SEL or L_{max} , in close collaboration with the World Health Organisation (Europe). A first draft is expected late 2016 or early 2017, with a possible vote and implementation in 2017 [Note: this is not about implementing recommendations for limit values, but merely the dose response relations – Paul de Vos].

The third action of DG ENV refers to the Regulatory Fitness and Performance Programme (short: REFIT) of the EC, and includes an assessment of the effectivity and efficiency of a particular regulation, its coherence with other regulations, the amount to which it matches the current needs, the additional value of a common approach (compared to every Member State working on its own), and the costs and benefits of the administrative burden. In a review carried out by consultants, a significant delay in implementation was found, mainly due to a lack of clarity in definitions and a shortage of human and financial resources in the MS. In addition to the consultants' assessment, a public consultation has been launched to collect further suggestions for improvement (http://ec.europa.eu/environment/consultations/noise_2015_en.htm open till 28 March).

In the following discussion, Mr. Roovers (ProRail) requested for information on dose response relations for railway depots. It is fair to assume, that the current relationships for rail traffic noise do not apply to depot noise.

In the next intervention, **Mr. Ethem Pekin** presented the rail freight noise strategy of the Community of European Railways (CER). This strategy has been approved by the general assembly of CER. It recognizes the issue of rail freight noise, but focuses on solutions rather



than problems. Mr Pekin underlined that very old wagons will be scrapped, new wagons are introduced in compliance with TSI Noise, and through a target oriented retrofitting 10% of the EU freight fleet of 400,000 wagons is silent already. CER supports the approach defined in the EU Staff Working Document, including the four essential elements: Noise Dependent Access Charges, financial support for retrofitting, noise related standards for infrastructure, and application of TSI Noise limits to existing wagons. CER however stresses the fact that rail competitiveness has to be maintained. A survey amongst CER members has demonstrated that retrofitting leads to an increase of operational costs between 2 and 16%. The available financing mechanisms such as the Connecting Europe Facility refer to the cost of retrofitting only, not to operational costs. Financial, technical and administrative concerns therefore still apply to the retrofitting of freight cars. Alternative measures, such as the erection of noise barriers or other measures to the infrastructure, need to be subject to a cost benefit analysis. CER is concerned that a reduced competitiveness of the railways could cause a “reverse modal shift”. Therefore, CER favors the internalization of external costs and strict maintenance of the polluter-pays principle, both for road and rail transport. With respect to the retrofitting, CER observes practical problems, for instance due to the limited number of suppliers for LL-blocks.

In the discussion, **Mr. Bernd Asmussen** (DB) referred to a discussion currently going on in Germany about the assessment of cost benefit numbers for a range of mitigation measures, including rail dampers. It appears that this issue is also on the agenda of the Dutch presidency (TEN-T days, see above). **Mr. Pascal Fodiman** (SNCF) addresses the homologation of LL-blocks entering the market. Their noise performance is not subject to the homologation tests, which represents a risk factor for the credibility of both the railways and the manufacturer. **Mr. Oertli** replies that this issue was raised in the Expert Network Noise. It was found to be not feasible for financial reasons to investigate this issue in more depth.

Prof. Stephen Stansfeld of Queen Mary University London is a leading expert on the impact of noise on humans. He addressed the development, by the World Health Organisation, of new environmental noise guidelines for the European region. These new guidelines replace or amend the existing community noise guidelines (1999) and night noise guidelines for Europe (2009). They will serve in particular the definition of new dose response relations in Annex III of the Environmental Noise Directive. The issue is emphasized by the WHO publication on the burden of disease from environmental noise, which concludes that each year in European cities around 900,000 healthy life years are lost due to road noise induced sleep disturbance and 650,000 due to transport noise induced annoyance. In order to derive new dose response relations, the WHO task force identifies and analyses new and existing evidence for the health effects of environmental noise. The analysis is based on an updated definition of the concept of “highly annoyed”, which affects the outcome of the analysis. The new dose response relations, based on recently collected evidence bases, are substantially higher than the ones included in the current Annex III of the Directive (preliminary finding!). The new guidelines may as well address new noise sources and additional effects of noise. When draft conclusions will be available, an external review group will be set up, consisting of end-users and stakeholders experts.

Mr. Nicholas Craven from UIC presented the new State of the Art report on Railway noise in Europe. The report was issued recently and was available for workshop participants. Mr. Craven stated that a great number of stakeholders have been involved in the discussion around this report and that it was sometimes difficult to state a common opinion. The current report is intended to inform interested laymen both inside and outside the in the railway world, to contribute to more understanding and contribute to a constructive dialogue. In comparison to the previous state of the art report it demonstrates the progress that has been made, particularly in the field of freight noise. The report signals an increasing sensitivity to rail noise, although this sensitivity varies significantly between member states. Railway noise



contributes to health effects for the European citizen, but its contribution must be seen in perspective, particularly to road noise which has a ten times bigger influence. The report gives an overview of relevant EU regulation, from the white paper on transport to the Staff Working Document. In future, sources other than freight traffic may show up as being relevant. It is in the interest of railways to follow future developments with care. Such developments are for instance the implementation of common noise assessment methods (Cnossos-EU) and the increased application of noise barriers, as an effective but expensive mitigation alternative.

In the discussion, **Mrs. Maria Price** (UIP) said that the activity is too focused on freight noise. There are other issues that need to be addressed as well. **Mr. Wójcik** replied to that, saying that the Commission is in favor of a step-by-step approach.

Mr. Patrick Malléjacq is the incoming Secretary General of PIARC, the World Road Association. Mr. Mallejacq thanked UIC for inviting him and looks forward to collaborating with UIC whenever appropriate. Piarc is a non-political, non-profit association with the aim to promote international cooperation on issues related to roads and road transport. In order to do so, PIARC exchange knowledge and techniques on roads and road transportation. It joins 121 Member States and many regional authorities and members. It issues technical reports (free of charge) and a magazine (Routes) and organizes workshops and seminars. A technical report from 2012 is entitled “Monitoring of environmental impacts of roads” and describes how environmental impacts including noise can be monitored. Noise related subjects covered in various reports are: quiet pavements, optimized tyres and the tyre noise directive, control at source (vehicle type approval limits), integrated planning of transport and land use. In all these options, cost are relevant to consider. With respect to quiet pavements, there is a need for more standardization in the assessment methods.

In the discussion, the introduction of full electric and hybrid vehicles was addressed. Should this be considered an important step for noise control? Mr. Malléjacq replied that this was not obvious at all, since additional sound was included in these vehicles for safety reasons (EVAS = electric vehicle alerting sound). With respect to the quiet pavements, Mr. Malléjacq stated that standardization across countries would be very complex due to cultural and climatological differences.

On behalf of ACI, the Airport Council International, **Mrs. Marina Bylinsky**, Manager Environmental Strategy & Intermodality, presented the State of the Art on Airport Noise Management. ACI is the professional association of airport operators, joining 500 airports in 45 countries. Mrs. Bylinsky introduced the ICAO (International Civil Aviation Organisation) Balance Approach, which coincides with the EU Directive 2002/49/EC and Regulation 598/2104. The Balanced Approach includes quieter aircraft, better land use planning, noise abatement procedures (e.g, continuous descent) and operational restrictions (e.g. night time bans). Noise differentiated landing fees would be part of the abatement category. Aircraft have become substantially quieter over the last decades and this helps to maintain a good relation with residents even when the traffic grows. As a result, the noise contours at many European airports have diminished. But the most important reductions have now been achieved. Future improvements are expected to have a minor effect.

Questions addressed the comfort of the passengers at steep descent. Mrs. Bylinski replied that once started, the steep descent does not cause much discomfort. Noise dependent landing fees would not be practiced at small airports, since it would be too complex. The variable fees can be imposed without EC interfering. The airports or Member States are free to impose them under national regulation.



Mr. Dominique Bidou is chairman of the French Noise Information and Documentation Center (CIDB). This was started in 1978 by Mrs. Alice Debonnet-Lambert with support from the French government. CIDB's role is to help fight noise pollution and search for a quality soundscape favouring the social, mental and physical well-being of our population. CIDB brings together many different stakeholders, organizes workshops and conferences, publishes a range of magazines and newsletters and answers to more than 6,000 questions from the public. In the paper, Mr. Bidou presented the case study of the Éole project, a light rail connection west of Paris, consisting of 47 km of improvement, 8 km of new line, 3 new stations, expected to lead to a traffic increase of around 50%. The project will be in full exploitation by 2022. Under French law, the project did not enforce many mitigation measures. Nevertheless, the expected impact to the residents was expected to be substantial. A specific budget of 30 million euro was allocated to "improve the situation for the residents". CIDB was assigned to work out this objective. The approach was to enter into a dialogue with local mayors and to define a specific solution for every hot spot. For reasons of equal treatment, five criteria were developed on which the decision on measures would be based: Technical feasibility, landscape, number of hot spots, acoustic efficiency, and cost per building. Residents were involved in the decision making and a special booklet was issued to inform the residents about the selection and decision process. What remains now is the detailed engineering of the mitigation measures.

Mr. Richard Greer, Director of Acoustics at consulting company Arup, introduced the SoundLab solution offered by Arup as an alternative to classical ways to inform the public about large infrastructural projects. SoundLab produces auralisation and visualization of a future situation and in doing so helps the general public to better understand and value this future situation. SoundLab is created in a special room at Arup's. SoundLab light is a mobile application using headphones, and Sound booth is an application used for consultation road shows. SoundLab is frequently used in the High Speed 2 project in the UK. It enables assessment of different scenarios, for example speed reduction, barrier height, and observation location. SoundLab can be extended with a so-called motion platform, which simulates feelable vibrations to a person seated or standing up, including passenger comfort for train passengers. When using simulation tools, it is of great importance to communicate to the public in neutral terms, in order to avoid influencing the judgment.

In the discussion, the question was asked whether simulation could be used to discourage people who were considering to start living close to the track. The answer was positive.

Mr. Peter Ettler is president of the Noise League Switzerland (Schweizer Lärm Liga). The league was founded in 1956. It contributed to the creation of the Swiss Railway Noise Improvement Act in 2000. Under this act, the Swiss federal government made budget available for the construction of more than 800 sound barriers. As a second step in the program the retrofitting of the entire Swiss fleet (passenger and freight vehicles) was carried out and finalized in 2014, financed to 184 million Swiss Francs. The third step is foreseen for the years 2015-2025. It includes application of the TSI Noise limits to all wagons running in Switzerland (in practice, this comes down to a ban for non-retrofitted wagons), acoustic optimization of the track and bonuses for particularly quiet vehicles. From the past, the conclusion can be drawn that reduction at source is the preferred option on the basis of cost benefit; barriers are extremely expensive. For the future, there are still many Swiss residents exposed to potentially harmful noise levels. Therefore the League wants to continue with its lobbying and informing the public. In the near future, a more solid basis is required on the health impact of various sources of noise.

Mrs. Maria Röjvall works for Stockholm City Council, in the Sustainable Development Department. The presentation deals with noise from Public Transport. The county has a



dense network of different kinds of public transport. Both the population and the transport networks grow rapidly, and the residents like to be close to transport facilities. The department defined a target with respect of the night time exposure of citizens, and produced guidelines on how the target can be achieved. One element of the guidelines deals with the approach with respect to complaints from citizens. The department participates in an EU funded research project called EU-TRACK. This project intends to develop methods for improved performance and monitoring of the track. More information can be found on www.quiet-track.eu

Mr Günther Dinhobl (ÖBB) presented a short paper on the approach of ÖBB with respect to noise. This approach rests on three pillars: In the case of new lines, the residents are involved in the decision making. This is called participation. In the case of maintenance and construction work at site, the approach consists of information to be conveyed to the public. In the case of complaints from residents, the approach consists of communication with the complaining people.

Mrs. Lene Nøhr Michelsen of the Danish Road Administration and **Mr. Allen Jensen** of consulting company Ramboll presented a paper on communication with residents in the case of upgraded or new roads. Mrs. Michelsen stated that Denmark is a very dense country in terms of land use. There is a specified use for every piece of land and it is difficult to change that use without someone protesting. The road administration has worked out a method of communicating with the residents at different levels. Two specific elements are treated in this paper: the use of auralisation and the impact on human activities in recreational and natural areas. For infrastructure projects, noise is the main topic for communication with residents. The road administration's objective is to present an open and clear picture of the future situation to the residents and thus to image the road administration itself as a credible partner to the public. In doing so, the number of legal inquiries shall be reduced. The administration attempts to bring communication to the desired level, in using different kind of meetings and dialogues, including through social media. For activities in natural areas, the recommended method is to describe the present soundscape as precise as possible, to survey the activities and to assess the impact of the project on these activities.

Mr. Oertli closed the workshop, thanked all speakers and participants, concluded that the workshop provided a wide variety of perspectives, both in modalities and countries. It is clear that there is a need to maintain a proper balance between environmental performance of the railways on the one side and loss of market share on the other. With respect to the residents, the railways should strive to avoid or minimize health risks. Above all, it is important that all stakeholders will agree to settle for a compromise instead of insisting on their own position.



Moderator: Jakob Oertli Chairman of the UIC Noise Expert Network & SBB

- Jean-Pierre Loubinoux, Director General International Railway Association
- Libor Lochman, Executive Director Community of European Railways and Infrastructure Companies
- Ivana Juraga, Policy Officer DG Environment / Bernhard Berger Deputy Head of Unit DG Environment
- Marcin Wojcik, Policy Officer DG MOV
- Stephen Stansfeld, Queen Mary University London & Chair of the working group for the WHO Environmental Noise Guidelines for the European Region
- Richard Greer, Director of Acoustics ARUP
- Patrick Malléjacq, incoming Secretary General of PIARC
- Peter Ettl, President Swiss Noise Organisation (Schweizer Lärm Liga)
- Dominique Bidou, Chairman CIDB
- Nick Craven, Sustainable Development Manager UIC
- Marina Bylinsky, Environmental Strategy & Intermodality Airports Council International
- Lene Noehr Michelsen, Danish Road Directorate and Allan Jensen, Ramboll