Progress on noise policies: 2008 - 2011

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EUROPEAN UNION

European Commission (EC) initiatives to improve noise policies across the European Union (EU) continue with considerable scientific and government support, with most of these efforts addressing issues related to the Environmental Noise Directive (European Commission 2002). The main EC policy website is: http://ec.europa.eu/environment/noise/home.htm, where the range of EC DG Environment activities related to noise policies may be viewed.

Review of the implementation of the Environmental Noise Directive 2002/49/EC

The Dutch consultancies Milieu Ltd., Risk and Policy Analysis Ltd. (RPA) and TNO were contracted by the European Commission to conduct a project reviewing the implementation of the Environmental Noise Directive 2002/49/EC (END), as required by Article 11 of the END. The project ran from December 2008 until May 2010 and entailed three Tasks, summarized the project's objectives as follows:

- Task 1: To review the implementation of the key provisions of the Directive by the Member States (EU27) and to develop proposals for the amendment of the Directive, if considered appropriate;
- Task 2: To provide a comprehensive review of measures employed to manage environmental noise from key sources in the Member States; and
- Task 3: To develop an Action Plan outlining further implementation strategies and Community action on environmental noise, if considered appropriate.

Three separate reports have been produced on these tasks and can be made available upon request.

ENNAH - the European Network on Noise and Health

As described on their web site (www.ennah.eu), "The ENNAH network is funded by the European Union to establish a research network of experts on noise and health in Europe. The network brings together 33 European research centers to establish future research directions and policy needs for noise and health in Europe. The Network will focus on the study of environmental noise sources, in particular transport noise, as well as emergent sources of noise such as noise from wind farms and low frequency noise. The network will facilitate high level science communication and encourage productive interdisciplinary discussion and exchange". ENNAH has the aim of influencing future EU policy by recommending research priorities on Noise and Health. The final ENNAH Conference is being held on 6 July 2011 in Brussels. The results of this important conference should be available afterwards.

EUROPEAN ENVIRONMENT AGENCY (EEA)

EEA Good practice guide on noise exposure and potential health effects

In November 2010 the European Environment Agency EEA published the outcome of work by its Expert Panel on Noise [Technical report 11/2010]. http://www.eea.europa.eu/publications/good-practice-guide-on-noise. The Expert Panel on Noise (EPoN) is a working group that supports the European Environment Agency and European Commission with the implementation and development of an effective noise policy for Europe.

The group aims to build upon tasks delivered by previous working groups, particularly regarding Directive 2002/49/EC relating to the assessment and management of environmental noise. The good practice guide is intended to assist policymakers, competent authorities and any other interested parties in understanding and fulfilling the requirements of the directive by making recommendations on linking action planning to recent evidence relating to the health impacts of environmental noise and, among others, the Night Noise Guidelines for Europe as recently presented by the World Health Organization. Specific Issues covered in this important document include Health endpoints, exposure-response relationships and thresholds for health endpoints, risk assessment and quality targets.

EEA – Noise observation and Information Service

The EEA has updated and improved its Noise Observation and Information Service for Europe (NOISE) database. It now contains noise data for EEA member countries up to 30 June 2010. The data can be viewed in a user-friendly interactive map tool or can be downloaded in a variety of formats. For the first time, the map viewer also displays local noise contour maps for selected areas (see: http://noise.eionet.europa.eu/). NOISE provides, at the click of a mouse, a picture of the numbers of people exposed to noise generated by air, rail and road traffic across Europe and in 102 large urban agglomerations. Compiling information from 19 of the 32 EEA member countries, the NOISE database represents a major step towards a comprehensive pan-European service. Following the adoption of the Environmental Noise Directive (END), Member States were given until December 2007 to deliver relevant data. Users of the NOISE database can view the extent of data reported in accordance with the directive on a color-coded map.

WORLD HEALTH ORGANIZATIN (WHO)

The World Health Organization (WHO) is not a policy-making organization. Instead, it provides scientific inputs to the noise policy making process. Thus, their reports need to be viewed as guidelines and recommendations, rather than regulations. In addition to other reports since 2008, WHO-Europe in 2009 published "Night Noise Guidelines for Europe" (WHO 2009), specifically examining the issue of sleep disturbance and other effects of nighttime aircraft overflights and providing noise guidelines for nighttime noise, including recommendations for noise metrics and noise exposure criteria.

This report is available for download from the WHO web site at (http://www.euro.who.int/__data/assets/pdf_file/0017/43316/E92845.pdf. As cited in this report, "Considering the scientific evidence on the thresholds of night noise exposure indicated by $L_{night,outside}$ as defined in the Environmental Noise Directive

(2002/49/EC), an $L_{night,outside}$ of 40 dB should be the target of the night noise guideline (NNG) to protect the public, including the most vulnerable groups such as children, the chronically ill and the elderly. $L_{night,outside}$ value of 55 dB is recommended as an interim target for the countries where the NNG cannot be achieved in the short term for various reasons, and where policy-makers choose to adopt a stepwise approach. These guidelines are applicable to the Member States of the European Region, and may be considered as an extension to, as well as an update of, the previous WHO *Guidelines for community noise* (WHO 2000).

The more recent WHO report, "Burden of disease from environmental noise - Quantification of healthy life years lost in Europe" (WHO 2011), was prepared by experts in working groups convened by the WHO Regional Office for Europe to provide technical support to policy-makers and their advisers in the quantitative risk assessment of environmental noise, using evidence and data available in Europe. The chapters contain the summary of synthesized reviews of evidence on the relationship between environmental noise and specific health effects, including cardiovascular disease, cognitive impairment, sleep disturbance and tinnitus. A chapter on annoyance is also included. For each outcome, the environmental burden of disease methodology, based on exposure–response relationship, exposure distribution, background prevalence of disease and disability weights of the outcome, is applied to calculate the burden of disease in terms of disability-adjusted life-years (DALYs).

The full WHO report may be downloaded from: http://www.euro.who.int/en/what-we-publish/abstracts/burden-of-disease-from-environmental-noise.-quantification-of-healthy-life-years-lost-in-europe.

COMMITTEE ON AVIATION AND ENVIRONMENTAL PROTECTION (CAEP)

In the fall of 2007, the International Civil Aviation Organization (ICAO) Committee on Aviation and Environmental Protection (CAEP) held a very important Workshop in Montreal, Canada entitled "Assessing Current Scientific Knowledge, Uncertainties and Gaps in Quantifying Climate Change, Noise and Air Quality Aviation Impacts". As described in the final report from the noise panel at this Workshop (Maurice & Lee 2009), "The CAEP process of assessing aircraft noise impacts is primarily based on the number of people exposed to significant noise as measured by day-night sound level, or DNL, which is not an assessment of impacts per se. This approach of quantifying people exposed should be modified to focus more specifically on the health effects or outcomes of aircraft noise exposure. For noise, the most appropriate definition of health is that of the World Health Organization (WHO), which indicates that health is 'a state of complete physical, mental, and social wellbeing and not merely the absence of disease, or infirmity.'

There are currently well documented exposure-response relationships for a number of health effects which can be applied presently by CAEP to the overall aircraft noise assessment process, except for sleep structure and coronary heart diseases (CHD). However, because air traffic has evolved from fewer operations with loud aircraft to more frequent operations with quieter aircraft, an update to exposure-response curves may be needed to better reflect current and projected air traffic operations. The workshop also noted that the applicability of and ability to generalize existing noise effects research data and related exposure-response relationships and thresholds to all countries is questionable and must be addressed.

As for air quality, CEA and CBA are potentially valuable tools for use in assessing the impacts of aircraft noise. However, the Noise Panel discussions noted that primary emphasis for aircraft noise impact assessment should focus on expanding exposure analyses. Noise panelists generally felt that economical assessment of noise impacts is challenging. Economists presented the state-of-the-practice in noise impact evaluation, based on housing value loss or contingent valuation surveys. But many among the Noise Panel expressed their concern that such economic impact models fail to capture the full extent of noise effects, such as the value of cardiovascular effects and the effects of sleep disturbance on worker productivity and worker accidents. Some panelists noted that DALY (disability-adjusted life years) and QALY (quality-adjusted life years) analyses, which are very well developed for air quality impacts, were also applicable to noise and had been used to compare noise and air quality impacts in airport analyses. However, other panelists felt that these methodologies were not yet widely agreed upon for noise impacts. Ultimately, panelists noted that most of them did not have economic expertise and that CAEP should seek further advice." Considerable additional information may be obtained on by downloading this important report from: http://www.icao.int/env/CaepImpactReport.pdf.

INTERNATIONAL CONSORTIUM ON NOISE ISSUES IN DEVELOPING AND EMERGING COUNTRIES

Over the past decade or so, the European Commission (EC), the International Institute of Noise Control Engineering (I-INCE), the International Commission on Biological Effects of Noise (ICBEN), the World Health Organization and other Western governmental organizations and professional societies continue to address the negative effects of noise exposure and to make progress in developing effective and affordable approaches to improving ways to reduce these negative effects. Organizations such as the World Health Organization (WHO) and the International Commission on Biological Effects of Noise (ICBEN) are particularly influential because of their leadership of international efforts to improve the scientific foundation for noise policies and noise mitigation approaches for both community/environmental and occupational noise.

At the same time as significant improvements in predominantly Western noise policies have taken place, there is a concern about whether the approaches being taken by governments in developed, predominantly Western, countries are appropriate, affordable and technologically feasible for use implementation in developing and emerging countries, primarily in Asia, Africa and South America. This concern is largely based on the many differences between the "developed" and both "developing and emerging" countries concerning their available financial resources, differences in technological capabilities, differences in noise sources, differences in cultural expectations about the acceptability of various exposure sources, differences in climates, lifestyles, building construction techniques, etc. The attached diagram shows the variety of these influencing factors.

To address this serious concern, an international consortium of acoustics experts, academics, government representatives and relevant stakeholders has been developed to work together in a coordinated international effort to explore this issue and facilitate discussions necessary to coordinate noise research and noise policy efforts within developing and emerging countries. The goal is to gather and disseminate information needed for the implementation of modern noise mitigation techniques and

noise control policies which match the circumstances of individual countries, not to impose predetermined solutions from Western experts. This project will involve holding a series of Workshops, Symposia and special technical sessions, especially at international acoustics conferences, to address this complex and difficult topic. These efforts are expected to lead to the publication of the results of the planned international discussions and, hopefully, future coordinated projects. We feel that a special effort is needed in order to better understand the differences between "developed" and "developing and emerging" countries, and the implications of these differences, for implementing adequate national and local community and occupational noise control approaches. The International Consortium will address this vitally important need, although additional membership and both organizational and financial support is sorely needed if it is going to be a success, especially support for the anticipated international Workshops at various acoustics conferences.

The International Consortium has been receiving steadily growing interest and a strong foundation for this effort is currently emerging. The International Commission on Biological Effects of Noise (ICBEN) is a major partner in the Consortium and the World Health Organization (WHO) has also expressed their encouragement for this effort. Additionally, support is also being received from the International Commission on Acoustics (ICA). Tsinghua University in Beijing, China has agreed to provide vital technical support to the International Consortium and other organizations are also involved.

ACTIVITIES IN THE UNITED KINGDOM

Department for Environment, Food and Rural Affairs (DEFRA)

The United Kingdom continues to make significant contributions to the noise effects research and noise policy-making activities. In July 2009 two key publications relating to Noise and Health, with implications for economic valuation, and for noise policy in general appeared on UK Government Department websites. The first of these was a project to undertake a review of research into the links between noise and health. This research has now been completed and the various reports can be viewed below. The report has been split into two reports with a project report giving some background information and a summary of the findings while the technical report goes into greater detail and is aimed at those with an expert interest in the subject. The 2009 report is available at http://archive.defra.gov.uk/environment/quality/noise/igcb/publications/healthreport.htm. In August 2010 . Defra followed up the 2009 report with their own, based on additional data being made available. This report builds on the evidence gathered in "Estimating dose-response relationships between noise exposure and human health in the UK" (2009) by UK noise experts and aims to build those findings into an appraisal. Based on the review, recommendations were made for how reflect the health impacts of noise in policy appraisals:

HM Treasury

The above Defra report on "Noise & Health – Valuing the Human Health Impacts of Environmental Noise Exposure ", based on the report of July 2009, now forms part of the Government policy as indicated in The Treasury Green Book, which is HM Treasury guidance for Central Government, setting out a framework for the appraisal and evaluation of all policies, programmes and projects. It sets out the key stages in

the development of a proposal from the articulation of the rationale for intervention and the setting of objectives, through to options appraisal and, eventually, implementation and evaluation. It describes how the economic, financial, social and environmental assessments of a proposal should be combined and aims to ensure consistency and transparency in the appraisal process throughout government.

See http://www.hm-treasury.gov.uk/data_greenbook_index.htm

NOISE POLICY STATEMENT FOR ENGLAND

In March 2010 Defra published The Noise Policy Statement for England [published on 15 March 2010] (see: http://www.defra.gov.uk/environment/quality/noise/npse/). This document sets out the long term vision of government noise policy to promote good health and a good quality of life through the management of noise. The policy represents an important step forward, by helping to ensure that noise issues are considered at the right time during the development of policy and decision making, and not in isolation. It highlights the underlying principles on noise management already found in existing legislation and guidance. The policy was developed in consultation with key partners within and outside of government.

NOISE ACTION PLANS

The purpose of Noise Action Plans is to assist in the management of environmental noise and its effects, including noise reduction if necessary, in the context of government policy on sustainable development. Noise Action Plans are based on the results of the strategic noise maps published in 2008. Responsibility for preparing noise maps and noise action plans for major airports (and smaller airports close to agglomerations) falls on the relevant airport operator. To date, the Secretary of State for Environment, Food and Rural Affairs has formally adopted Noise Action Plans for 23 agglomerations (large urban areas), major roads, and major railways in England as of 15 March 2010
(see: http://www.defra.gov.uk/environment/quality/noise/environmental-noise/action-plans/).

ACTIVITIES IN THE UNITED STATES OF AMERICA (USA)

There have been very little major improvements of modifications of U.S. noise policy since 2008, although each of the involved federal agencies, such as the Federal Aviation Administration, Department of Housing and Urban Development and the Department of Transportation, all continue to have active program on noise mitigation and most have active research programs. However, the first national program to examine how to improve U.S. noise policies, a new national program has recently been implemented, entitled "Towards a Quieter America". This program will include a series of workshops, roundtables and briefings in Washington, DC throughout 2011. The primary basis for the broad national campaign was the 2010 publication of "Technology for a Quieter America" by the National Academy of Engineering.

ACTIVITIES BY THE INTERNATIONAL INSTITUTE OF NOISE CONTROL ENGINEERING

Although not a policy-making organization, in 2011 the International Institute of Noise Control Engineering (I-INCE) published the Final Report of Technical Study Group 6, entitled "Guidelines for Community Noise Impact Assessment and Mitigation". This

noise policy-related report addresses the major issues involved in performing environmental noise impact assessments and provides recommendations for a generic Environmental Noise Impact Assessment Process (EIAP), which is recommended for use around the world in a more harmonized manner.

ACTIVITIES IN SWITZERLAND

Noise abatement is well established in the environmental policies of Switzerland. The policy to reduce or avoid noise exposure of the population was laid down in the Environmental Protection Law and in the Noise Abatement Ordinance in 1983 and 1987, respectively. The legal framework was further developed in the following years by introducing exposure limits for roads, railways, civil shooting ranges, industry and trade installations, civil and military airports as well as legal regulations for the Swiss railway noise remediation action plan.

Present situation: In the last years considerable efforts have been undertaken to prevent new noise problems and to remediate noisy installations. More than two billion Euros have been spent on action plans to make roads, streets and railways less noisy and at least another two billion Euros will be spent till the end of the remediation process in the 2020's. The legal framework has been further updated with health-evidence-based limit values for military shooting grounds and benefit-orientated subvention regulations to incite and accelerate the action plans of noise abatement of roads. Measured noise exposure maps on paper have been replaced by powerful calculation methods coupled with Geographical Information Systems (GIS) to handle huge quantities of spatial, demographic and infrastructure data. The introduction of a new national monitoring system SonBase made it possible to map noise exposure of the entire country with harmonized calculation methods and nationwide data. Results show that 1.3 million people or 17 % of the Swiss population are exposed to traffic noise levels above the legal limits. Taking the critical limits recommended by WHO the number rises even to 4 million people or more than 50 % of the population. The annual external costs of noise are estimated to be around 700 million Euros.

Future efforts are planned on the following topics: The noise monitoring system will be improved by enhancing the accuracy of input data such as GIS and traffic flow information and by making use of data available on a regional level. Additionally, research in risk assessment will be concentrated on updating the scientific basis for exposure-response functions, limit values and new valuation methods such as the DALY-concept in order to describe and quantify the impact of noise on public health and the economy. Noise abatement at source will be intensified by developing and enforcing silent innovative technologies such as low-noise appliances and vehicles as well as silent tires and pavements. Moreover, new economic incentive systems to reduce noise will be evaluated, including measures to increase market transparency (e.g. labeling low-noise products and areas) and polluter-pays based financing methods.

Harmonization of noise abatement in Europe will be tightened by intensifying international collaboration and exchange of information. In addition to the already existing working groups of the EU and the WHO, a new "Interest group on traffic noise abatement" under the Network of the Heads of Environment Protection Agencies was created in 2010. The aim of the group is to develop and recommend (practical) short term as well as (visionary) long term noise abatement solutions.

ACTIVITIES IN AUSTRALIA

Noise policy in Australia is implemented at the State level and there are variations from State to State. However, the general approach remains the same namely to control the noise and to avoid creeping background noise levels. This can lead to complicated assessment both in terms of comparison with a background noise level and with a noise zone standard. There is also an acknowledgement that many developments need to go ahead and so there is an acceptance of reasonable and feasible measures along with community consultation. There are a number of issues arising in regard to noise impact from major infrastructure that is at a much greater scale that has previously been installed. Much of this is being driven by the needs for alternative energy sources. For example very large gas fired power stations have led to complaints about excessive very low frequency noise. The lack of clear guidance on assessment of such noise is a concern to the regulatory agencies. Similarly there is great concern in the community about the low frequency noise from wind farms. Large farms are proposed for the hill tops in rural areas and while only a few residents may be affected these are quite vocal.

Another concern for some agencies is the methods for establishing appropriate acceptable noise levels for residential areas within what has been commercial areas. In the past there has been separation of the two land use zones and any conflict has been only along the boundary. But there is a trend to increase the housing density with apartment buildings close to the commercial centre and often with commercial activities at street level.

ACTIVITIES IN IRELAND

The transposition of EU Directive 2002/49/EC into Irish legislation has, for the first time, brought about a national strategy for the assessment (and control) of environmental noise in Ireland. Prior to the Directive, noise studies were limited and generally conducted on a case-by case basis, relying heavily on relevant UK guidance. However, in 2004, the NRA released their "Draft Guidelines for the Treatment of Noise and Vibration in National Road Schemes". These guidelines radically changed the situation and provided explicit and relatively detailed guidance on how noise should be addressed during the preparation of an EIS. The guidelines refer to EU Directive 2002/49/EC and introduced the Lden indicator to noise assessments. They have since become a de facto standard for noise assessment in Ireland.

The first phase of noise mapping was successfully completed in 2007. This described the level of noise exposure of approximately 1.25 million people. The second phase, due to be completed in 2012, sees a significant increase on the extent of mapping required and as such, a large number of local authorities with no mapping experience will be involved in the process. It will be important to draw on the experience of the first phase in order to successfully deliver the strategic noise maps in 2012. To assist with the implementation of the second phase the EPA have released guidelines for noise mapping and action planning and Ireland has nominated an expert to sit on the CNOSSOS-EU Technical Committee preparing common European noise assessment methods. It is hoped that such methods will improve the reliability and comparability of noise mapping results across the EU.

ACTIVITIES IN SWEDEN

In Sweden, traditionally, road pavements have been selected based essentially on the durability and resistance to wear by the tires, many of which in Sweden are equipped with steel studs in winter time. It means that the cost for the road authority has been minimized, and the road user and road environment costs have been more or less neglected.

However, presently the Swedish Transport Administration (STA) has a new and brave policy for selection of environmentally more friendly road pavements on trial. It is based on a cost/benefit comparison of the presently dominating Swedish pavement (SMA16) with some candidate pavement that is better from an environmental point of view. On the "cost side" is then the extra cost for laying and maintaining the candidate pavement compared to the "standard" Swedish pavement, which is SMA16. On the "benefit side" is then the monetary evaluation of the environmental improvements by the candidate pavement, as expected for

- lower noise exposure
- lower rolling resistance (converted to lower fuel consumption and less CO2 emissions)
- lower emission of particulates into the air

Some of these "benefits" may assume negative values, depending on the properties of the candidate pavement. If the overall result of the comparison shows a significant net benefit for the candidate pavement, the candidate pavement should be used instead of the "standard" and traditionally used pavement. The experience so far shows, for example, that

- on the "cost side" the wear caused by the studded tires in winter usually is very influential, but it depends on traffic volume and speeds

- the benefit of lower noise exposure may have large influence on the net result if the population density is high along the studied road section, but insignificant if the density is low

- the benefit of lower rolling resistance is often dominating the overall result, but is usually well correlated with favorable noise effects

- candidate pavements which often appear more favorable than the standard SMA16 are SMA:s with smaller aggregates (stones); typically 11 instead of 16 mm, or even 8 instead of 16 mm, also

- dense asphalt concrete pavements may appear to be more favorable despite much faster wear

Presently, the system is refined and new data are collected in order to obtain more accurate estimates of environmental effects and their monetary values. The policy is not yet applied everywhere but experience is collected and is expected later to result in a changed pavement selection policy nationwide, which will be beneficial to the entire road user and road environment, yet being economically justifiable in an overall sense.

ACTIVITIES IN JAPAN

Activities in Japan over the past five years include revision of the "Environmental Impact Assessment Law", designed to prevent serious influence on environment by large-scale developments. The Environmental Impact Assessment Law was enacted in 1997 in Japan. To strengthen this law, a minor amendment was made in April 2011, in which the concept of "strategic environmental assessment" has been included. According to this revision, wind turbine noise has been included as a subject of this law, although Japan still has noise policy issues to address, such as how to measure and assess this kind of noise, which has not been standardized and noise criteria have not been specified. Other activities in Japan include the following:

In the end of 2007, the guideline of Environmental Quality Standard (EQS) for Aircraft Noise was revised by the Ministry of the Environment to use Lden instead of WECPNL. Revision of a manual for measurement and evaluation of aircraft noise followed it in 2009. The guideline will be enforced from 2013, April.

Concerning the EQS for High-speed Railway (Shinkansen), the Ministry has not yet been successful in revising it to use L_{Aeq}-based metrics, nor in establishing an EQS for Conventional Railways. Thus, L_{ASmax} is still used as noise index for Shinkansen. Japan has no guidelines for existing conventional railways except when a railway line is planned to be reformed on a large scale. The Ministry has been studying the way to land use planning, especially along railway lines, but has not yet established any final document.

Revision of the Aircraft Noise Prevention Law, et al. as the basis for environmental measures is now under progress by the Ministry of Land, Infrastructure and Transportation. Revision of another law for environmental measures around defense facilities will also follow these.

The ministry of the Environment performed a research project on the effects of noise on sleep disturbance by organizing a study committee, but it has not yet been successful in establishing a final method of evaluation.

Concerning Wind Turbine noise, the Ministry of the Environment has started an investigation on this topic since last year.

The Ministry of Defense has been studying whether it should revise the method of evaluation for effects of aircraft noise and artillery noise on educational facilities and hospitals, and so on.

Concerning product sound, there is a issue being considered for warning sound signal generation on electric cars.

ACTIVITIES IN CANADA

"In 2010, Health Canada published a 1 page Notice to Stakeholders titled Noise from Machinery Intended for the Workplace. This document recommends that machinery, intended for the workplace be sold, leased or imported into Canada, with accompanying standardized noise emission declarations in both the technical sales literature and the instructions for use. The Notice refers to The Canadian Standards Association's (CSA) Standard Z107.58 Noise Emission Declarations for Machinery as well as the European Union (EU) Machinery Directive and numerous international standards supporting this EU Directive. In related activity, a Health Canada research scientist was project leader for the revision of the ISO 3740 series of standards for the deter-

mination of sound power using sound pressure measurements. Five of these ISO standards were published in 2010.

In the area of environmental noise, in 2010, Health Canada published a summary document titled "Useful Information for Environmental Assessments" which contains a Noise section. The more detailed guidance document on Noise is in preparation. Furthermore, since 2010, in collaboration with Canada's Provinces and Territories, Health Canada is in the process of developing National Guidelines for Wind Turbine Noise."

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Health costs of noise: What have we learnt from the literature and their use in noise policy?

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ABSTRACT

Traffic, especially air traffic, is expected to increase in the future; consequently more people will likely face an increasing number of noise impact constraints. Therefore public authorities need an assessment tool of noise effects: noise costs. How these costs can be assessed and integrated in the policy making?

Within the FP7-ENNAH project (European Network on Noise and Health), a research work addressed the health costs of noise: current knowledge (preliminary overview of methods) and noise values derived from these costs, applied by researchers and policy makers.

For monetary assessment of noise impacts, various different studies were examined, where a wide range of real estate losses as well as loss of work and life were ascertained. It is assumed that the owner is aware of the disruption and annoyance caused by noise, which is not often the case for health effects.

First of all, a literature review related to health costs of noise in general and of aircraft noise in particular has been performed as well as ongoing research projects were taken into account.

Secondly, a survey was worked out for experts in this field. A short questionnaire was designed and then sent out to 58 experts involved in noise research and in noise policy, from Europe, Japan, USA and Australia. Their views about the practices and difficulties encountered, when assessing health costs of noise, will be presented and discussed here.

For assessing benefits of noise abatement policies, it is recommended to systematically use noise values reflecting health costs of noise.