

NOISE – POLICY AND LAW

By Reuben Taylor

Introduction

1. This paper seeks to introduce some elements of the policy and law relating to noise as an environmental impact.
2. “*The amount of noise which anyone can bear undisturbed stands in inverse proportion to his mental capacity.*” It is an interesting theory from Mr. Schopenhauer but, as an AC/DC fan, not one I can hold with. In fact, the response of humans to noise varies widely making it a very difficult task indeed for policy makers to set thresholds of acceptability for exposure of noise in the modern world.
3. For example, the response of people to aircraft noise has been widely studied over many years in a number of sleep disturbance studies. All of these studies produce graphs that demonstrate that a person’s response to a given level of noise is a very personal thing.

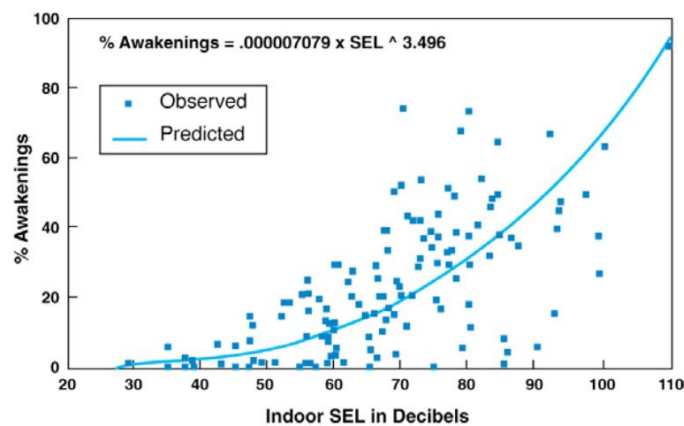


Figure 1. Interim Sleep Disturbance Dose-Response Relationship Recommended by FICON (FICON, 1992)

4. This is the dose response graph from an early study by the Federal Interagency Committee on Aviation Noise. The blue dots are when people awoke. As you can see there is a wide disparity of response. Thus, whilst it is possible to mathematically calculate a line of best fit, how much use would a policy be if that line were used to judge the acceptability of new airport proposals?

5. Yet more difficult is the fact that we seem to react to noise differently depending on the source of it.

Highly disturbed by noise at night

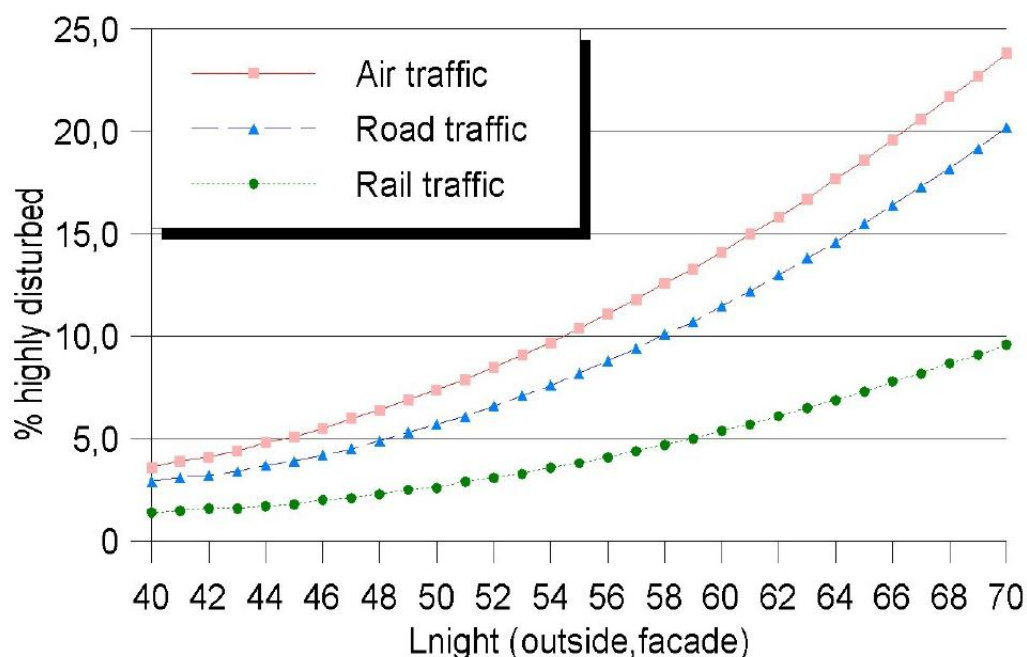


Figure 7. Percentages of highly disturbed when exposed to rail and road traffic noise

6. This graph was produced by the European Commission Working Group on Health and Socio-Economic Aspects position paper on Dose Effect Relationships for Night Time Noise. The population appears to find aircraft noise more disturbing at night than road traffic noise which in turn is more disturbing than rail noise.

7. So what do politicians do then when faced with such difficult issues?

The European Dimension

8. In 1996 the European Commission issued a Green Paper in which it was stated that an estimated 20% of the EU citizens were exposed to noise levels that scientists and health experts considered to be unacceptable, at which most people become annoyed, sleep is disturbed and health may be at risk. The Green Paper proposed a strategic approach to noise control by focusing on those exposed to environmental noise.

9. In July 2000 the Commission issued a proposal for a Directive relating to the Assessment and Management of Environmental Noise (the Environmental Noise Directive). The Directive 2002/49/EC was published in the Official Journal on 18 July 2002. It concerns noise from road, rail and air traffic and industry.
10. The Environmental Noise Directive requires Member States to make Strategic Noise Maps for major agglomerations¹ along major roads, major railways and major airports within their territories. Action plans have to be drawn up. These are to be designed to manage noise issues and effects including noise reduction if necessary.
11. The Environmental Noise (England) Regulations 2006 give effect to the EU Noise Directive. They came into force on 1 October 2006.
12. They required noise maps to be made and adopted by the Secretary of State by 30 June 2007 in relation to what are termed "first round" agglomerations, major roads, major railways and major airports. The results of this exercise can be viewed online at <http://noisemapping.defra.gov.uk>
13. The maps come with a wide disclaimer as to their accuracy. DEFRA explains that:

"...the maps are only intended to be used for strategic assessment of noise levels in any given area. They should not be used to attempt to determine, represent or imply precisely the noise levels at individual locations (e.g. individual houses, windows). It should also be borne in mind that the noise levels shown are for an average day in the year, and therefore do not show the specific noise from individual vehicles, trains, or aircraft or from discrete industrial activities."
14. A second round of noise mapping for all agglomerations, major roads, major railways and major airports is to follow by 30th June 2012.
15. Perhaps of more interest however, is that in addition to noise mapping the EU Directive requires the adoption of action plans.
16. The 2006 Regulations place a duty on the Secretary of State to publish guidance setting out "limit values or other criteria for the identification of priorities for action plans"² by the 18th July 2007. Can we then expect to see the introduction of noise limit values in the UK? DEFRA

¹ a large urban area with a population of over 250,000 and a population density of more than 500 persons per square kilometre

² Regulations 14(1) of the 2006 Regulations.

made it plain in an FAQ published on its website in 2006 that we cannot. Instead, it would appear that the UK is to adopt an “other criteria” based approach.

17. What then are the criteria? We were told that “work is currently underway to develop a National Noise Strategy for launch in 2007”.
18. In May 2009 however, the National Noise Strategy has not even been published in draft form for consultation and there has been no document published that even indicates what it is that the Government is considering by way of criteria. The UK is then currently in breach of its obligations under the EU Noise Directive and I doubt that it will be long before the EU Commission takes enforcement action against it.
19. What is even more interesting is that DEFRA is currently consulting on amendments to the 2006 Regulations that would remove the duty on the Secretary of State to publish limit values or other criteria. Instead, a power to issue guidance which must then be taken into account by those drawing up action plans is proposed. This seems to be an attempt by the Secretary of State to row back from the commitment to publish criteria. Would it be cynical to suggest that the Secretary of State does not want to be found to be responsible for failing to comply with the 2006 Regulations that were promoted by his own Department?
20. However, given that action plans are required by the EU Directive to address priorities identified by reference to the exceedance of limit values or breach of “other criteria”³ until the Government actually does act to publish criteria it is impossible to see how action plans can be adopted that accord with the requirements of the EU Directive. Thus, the amendment proposed will not make the problem go away and will not stave off enforcement action by the EU Commission. The UK is required by EU law to publish criteria against which action plans can be drawn up. It has not done so.
21. There has been some movement however. A series of documents was published in March 2009 that address action plans on a source by source basis.
22. In relation to **Airport Action Plans**, DEFRA published Guidance in March 2009. This explains that whether action needs to be taken in an action depends upon whether the noise from an airport is “acceptable”. It then indicates that the current key policy document in the aviation sector is the Air Transport White Paper 2003 which indicates that households experiencing 69 dBA or more should be offered relocation immediately.
23. Airport operators drawing up action plans are also told to:

³ See Articles 5 and 7 of the EU Noise Directive

“examine the day, evening and night results produced from the noise mapping and consider whether there are any features of the noise impact from departing or arriving aircraft that might be managed further...

Ensure that there is an effective complaint handling system in place...

Consider the information from any noise complaint data that is held and whether there are any measures that might be taken to manage further the aircraft noise impact...”

24. No sea change in policy there then.

25. In relation to **roads**, the draft Noise Action Plan identifies that the Noise Insulations Regulations 1975 and Planning Policy Guidance Note 24 as containing relevant criteria against which to consider the acceptability of road traffic noise. It also indicates that certain locations are to be form the initial focus of consideration for action:

- Where the 1% of the population that are affected by the highest noise levels from the major roads outside first round agglomerations are located according to the results of the noise mapping; and also
- where the LA10,18h at those locations is at least 76 dB.

26. In these locations DEFRA indicates that

“...the relevant highway authority will consider what, if any, actions might be taken. This will include, but not be limited to, exploring the scope for (in no particular order):

- Improving the sound insulation;
- Erecting noise barriers;
- Installing low noise road surfaces; or
- Local traffic management measures.”

27. A similar approach is adopted in the draft Action Plan for Major Railways. Again, the relevant noise insulation regulations⁴ are identified as is PPG24 as setting out relevant noise criteria. Again, there is a initial focus upon identifying where action may be taken. The criteria are similar but different to those adopted in relation to roads:

- Where the 1% of the population²⁴ that are affected by the highest noise levels from the major railways outside first round agglomerations are located according to the results of the noise mapping; and also

⁴ Noise Insulation (Railways and Other Guided transport Systems) Regulations 1996

- Where the LAeq,18h at those locations is at least 73 dB.

28. The second criterion here can be contrast with that in relation to roads. The roads criterion is an L10 value, i.e. the value derived from the noisiest 10% of all readings over the 18 hour period. The rail criterion is however an LAeq, a form of average that will necessarily be a lower figure than an L10 of the same data set. It would therefore appear that the threshold for action associated with rail is less likely to be exceeded than for roads, all other things being equal.

29. In the locations where action may be taken DEFRA has indicated that the following measures may be considered:

- Improving sound insulation;
- Erecting noise barriers;
- Increasing the frequency and nature of railhead grinding; or
- Altering the type of rolling stock that uses the particular rail corridor.

30. The draft Action Plan for **agglomerations**, adopts the same approach to noise from traffic and rail within agglomerations as I have set out above.

31. In relation to airports, it seems that the EU Noise Directive simply means business as usual, with no specific action being required of airport operators that was not already required.

32. It seems that some action may be taken to reduce noise levels for those worst affected by road and rail noise i.e. the worst affected 1% of the population. However, whether action will be taken will depend upon the application of existing noise insulation regulations and policy.

33. The EU Directive is therefore unlikely to result in any significant change to the thresholds that are used to determine acceptability of noise in the UK. Much of the action that might be considered as a result of the action plan exercise will depend upon discretionary decisions that will be dependent upon the availability of funding. Given present day economic constraints it would appear to be unlikely that monies will be spent upon noise mitigation if there is no legal duty to spend it.

34. As for a new National Noise Strategy, it seems that work continues on it but there is no date for publication of even a draft.

Planning Policy Guidance Note 24

35. Probably the most important noise policy document is PPG24. It was published in September 1994 and is getting on a bit. It sets out the national government planning policy in relation to noise. It seeks to guide noise-sensitive developments (housing hospital and schools) to locations away from major sources of noise.
36. However, other changes in planning policy that have occurred subsequently promote the use of brownfield sites within urban areas, promote sites that are close to public transport interchanges and promotes sites that are much higher in terms of housing density than any developments that have previously been seen in the UK. Some might call this policy town cramming, but whatever it may be termed the consequences for the location of development are clear; noise sensitive development is to be pushed towards locations which are likely to be subject to noise. There is thus a policy tension between PPG24 and other elements of planning policy. For the planning practitioner this means that noise and the mitigation of its effects is becoming more and more of an issue.

Residential Development

37. In relation to residential development, PPG24 introduced the concept of noise exposure categories. There are 4 categories labelled A to D.

NEC

- A** Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level.
- B** Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.

C Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.

D Planning permission should normally be refused.

38. The methodology requires an assessment of whether any particular type of noise source is dominant at the location under assessment; road, rail or air. If the level of any one source of noise lies within 2 dB of the combined level from all sources then that source is dominant. If no source is dominant then there is a mixed sources category. A table is then used to determine which NEC category is applicable to the site in question by looking up the type of noise source and the level measured.

39. PPG24 recognises itself that there should be some flexibility in the application of the NECs. It advises that “where there is a clear need for new residential development in an already noisy area some or all NECs might be increased by up to 3-dB (A) above the recommended levels.”⁵ However, in practice a much greater degree of flexibility is being applied.

40. The values given in the NEC table are free-field levels i.e. outside measurements away from reflective building surfaces. The values are based upon:

- a. The dose response research that was available in 1994, and in particular the WHO published guidance from 1980;
- b. Assumptions regarding the effectiveness of insulation from noise of window systems from the Transportation Noise Reference Book 1987 and from Sound Control for Homes, BRE 1993

⁵ PPG24 para 9

41. So far as the dose response research is concerned, as I have already touched upon above, there has been a continued level of research in this field over the last 15 years. There is therefore much more information available today from which to draw upon. For example, the 1980 WHO document has itself been superseded. The WHO published in 1999 Guidelines for community noise.
42. Technology has also moved on. Window systems are now considerably more advanced than they were when the work was carried out in order to inform the assumptions in PPG24. For example, it is possible to produce window systems that can insulate by around 40 dB or more as opposed to the 25 dB assumed in PPG24.
43. The noise exposure categories are therefore out-of-date and can be demonstrated to be out of date. This means that, whereas in the past obtaining planning permission for a NEC C or D site would have been very difficult, it can now be achieved and is being achieved on a regular basis.

Industrial Development

44. PPG24 also gives guidance on the assessment of noise from industrial premises. It advises that BS4142: 1990 should be used. This methodology requires the identification of a background noise level and a forecast of the noise level with the new industrial process operating at the nearest representative residential façade. A "correction" can be made to the forecast noise level if it will have tonal or impulsive characteristics by adding 5dB. If the difference between the background level and the forecast level is greater than 10 dB then "complaints are likely". A difference of around 5dB is of "marginal significance."
45. One difficulty encountered in practice is that many local planning authorities have now adopted either in the development plans or in supplementary planning documents different criteria of acceptability to those set out above for use in a BS4142 methodology. A difference of -5 dB is commonly seen i.e. the new noise source must be 5 dB or more quieter than the background noise level.
46. The problem for local authorities is that there is no science to support the selection of -5dB as a threshold of acceptability. There is nothing that says that a difference of zero is any less acceptable than -5 dB. Cross-examination on this basis can be amusing.
47. The selection of this figure is often justified on the basis that it stops noise creep. If the +5 dB marginal significance threshold were applied to every case, each time permission was granted, the background noise level would become a little noisier. Over time, with the grant of

multiple permissions, the background noise level will “creep” up. This can occur in high streets where to the rear of properties there may be a proliferation of condensers and other noisy plant.

48. Such policies also tend to bring out a dispute between developer and LPA as to whether the tonal/impulse correction of +5 dB should be applied.
49. The BS4142 methodology is also controversial where it is applied not just to industrial plant but to vehicles manoeuvring in the yard of industrial premises. Some LPAs have adopted policy that requires BS4142 to be used as the assessment tool in such circumstances⁶. The difficulty here is that the methodology does not expressly provide for moving sources and the dose response relationship it is based upon was not derived from work that looked at moving sources of noise. It is therefore questionable whether the BS4142 methodology can properly be applied to manoeuvring vehicles. The main difficulty however is that if it is not applied there is no other assessment methodology that can be applied. It is a question of using BS4142 or nothing.
50. Another significant criticism of BS4142 is that its criteria of acceptability are based upon whether or not a complaint is likely rather than whether or not a person who consider that the noise was disturbing; after all, a person may be disturbed by noise but not feel moved to complain about it.
51. Bernard Berry conducted a review of PPG24’s reliance upon BS4142 for DEFRA in 2004. He concluded that the available dose-response information was poor and that further work needed to be done to improve our understanding of dose–response to industrial noise.
52. In December 2008 Rupert Taylor was appointed head of a team to review the effects of the planning process on the noise environment with regard to human health, flora, fauna and the built environment. The study will investigate the effectiveness of the Environmental Impact Assessment process in dealing with noise impacts. It will consider both the Environmental Statement itself and the outcome of the process i.e. after the development has been implemented. For the ES stage the project will assess both the technical quality of the noise section and whether the impacts are described sufficiently clearly for the benefit of those who might be affected. It remains to be seen whether this work is intended to be an input into any revision of PPG24.
53. It can be seen that PPG24 is yellow around the edges. It is in need of a serious update. The Government recognised this many many years ago. A review of PPG24 was announced by the

⁶ e.g. London Borough of Ealing SPD10

Office of the Deputy Prime Minister in 2003. Now some 6 years later we still await the outcome of that review.

Windfarms

54. It is not just in relation to planning policy that the Government can be criticised for being out of date. In relation to the assessment of noise from windfarms, current Government policy is that in assessing noise from turbines the methodology in ETSU should be followed.

55. However, that methodology has been coming under increasingly heavy attack from well organised and well informed objectors. There is considerable debate underway as to whether the ETSU methodology correctly assesses likely noise impacts noise; particular factors such as windshear and Audible Modulation. In the past it has often been difficult for objectors to development to be able to obtain evidence regarding the acceptability of impacts that is changing as: (1) more turbines are erected; (2) issues on individual sites arise; and (3) the internet allows rapid dissemination of the complaints and experience.

56. A case in point is audible modulation – the phenomenon where aerodynamic noise displays a greater degree of fluctuation than usual such as to give rise to greater disturbance and annoyance than would otherwise be the case. In other words at the same noise levels the impact on residential amenity is greater. The cause of AM is subject to significant debate and it is clear that there is no consensus as to when it may arise or how it may be predicted. ETSU discounted AM because it was thought to be a factor which was negligible – only 3 dBA at the turbines themselves and much less at residences. Subsequent work commissioned by the Government showed that AM could be significantly higher than that assumed in ETSU7. Further research was recommended and in 2007 the Salford report was published. It noted that complaints associated with AM were relatively limited and concluded:

“The incidence of AM and the number of people affected is probably too small at present to make a compelling case for further research funding in preference to other types of noise which may affect many more people”

57. The government decided not to undertake further research and in a press release said that ETSU guidance should continue to be used. Some in the industry used this statement to argue that AM was not a factor to be considered at public inquiries and even that AM did not exist. There was then a High Court challenge by objectors which was resolved only after the Secretary of State made clear that - “Nowhere in the 2007 statement does the government

⁷ Hayes McKenzie study 2006

suggest that AM is not an issue in the UK; nor does it suggest that AM will not and cannot be an issue in the case for future applications for wind farms close to residences in low background noise areas.” (para 24 of SoS’s Acknowledgement of Service); and “Nothing in the statement should be construed as preventing any material from being considered in the context of a [windfarm] application” (para 35). The judge (Mitting J) in refusing permission on the papers – said – “It will always be open to any objector to an application for permission to develop a site as a windfarm, to contend that the Statement is technically inadequate or erroneous.” On the basis of that assurance, the claim was not pursued.

58. Thus, the controversy regarding the ETSU methodology will not go away and will continue to be challenged at inquiry by objectors.

Nuisance

59. The law of nuisance requires no particular level of noise to be proven to have occurred in order for a nuisance to exist. In *Murdock v Glacier Metal Co Ltd* [1998] Env. L.R. 732 the Court held that whether or not exceedence of the WHO guideline for a good sleep at night was exceeded was not determinative of the issue. The test to be applied was:

“whether according to the standards of the average person and taking into account the character of the neighbourhood the noise was sufficiently serious to constitute a nuisance”

60. Exceedence of a relevant noise standard was then only one of the relevant factors to take into account in applying that test.

61. Indeed, the Courts have held that noise which is below the background level is nevertheless capable of constituting a nuisance: *Godfrey v Conwy County Borough Council* [2001] Env. L.R. 38.

62. In *Lewisham LBC v Hall* [2003] Env. L.R. 4 the Court held that it was not necessary to produce sound level readings in order to demonstrate that a nuisance had occurred. The evidence of experienced environmental health officers as to the quality and effect of the noise can be sufficient to establish a nuisance.

63. Thus, it appears that unlike politicians, who are still striving to identify measurement based thresholds, the Courts adopt a much more suck it and see approach. Noise nuisance is much like an elephant, hard to describe but you know it when you encounter it!

64. Perhaps the difference between the politicians and the Judges though lies at the stage of assessment they are dealing with. The politicians are trying to establish criteria of

acceptability in relation to activities that are yet to occur e.g. a housing estate yet to be built by a railway or an airport runway yet to be built near a town/city. The Judges, however, are present with circumstances in which the noise has already been created and witnessed.

Conclusion

65. I have touch upon a very small corner of the issues that noise presents to the environmental lawyer. What can be noted is that politicians do not like it as an issue. It is avoided by them where possible; which is why we have no national noise strategy, why PPG24 has not been replaced even some six years after its review was announced and why windfarm appraisal has not been revisited in any detail. It is all too easy to introduce criteria in relation to noise that might only later stand in the way of other policy objectives e.g. wind energy expansion or airport expansion.

66. As an issue I have no doubt that noise will continue to become a greater and greater consideration as we try to continue to live cheek by jowl on our crowded little island. What is fascinating is that, even though we can measure noise extremely accurately, we can break it down into its component frequencies and we can forecast its levels with increasing precision, what we cannot do is explain how a person will react to it.

67. For me, noise is the unwanted sound of Girls Aloud at any volume; music is 130 dB of Motorhead, even though they made me deaf in one ear for 10 days after a gig when I was 14! But Lemmy is, I accept, not to everyone's taste.

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