Before an Independent Hearing Panel

Appointed by Wellington City Council

IN THE MATTER	of the Resource Management Act 1991
AND	
IN THE MATTER	of Notices of Requirements for new designations by Wellington International Airport Ltd for the Main site area (SR455891) and the East side area (SR462159).

Supplementary Statement of evidence submitted by Dr Stephen Geoffrey Palmer,
Medical Officer of Health for Regional Public health
in Relation to Effects on Human Health

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3 June 2021

SUPPLEMENTARY STATEMENT OF EVIDENCE

1. My full name is Stephen Geoffrey Palmer. I have the qualifications and experience set out in paragraphs 2 to 7 of my statement of evidence dated 12 May 2021.

2. In paragraph 9 of Minute 3 of the Independent hearing panel, I have been given leave to provide a written statement with my comments on Ms Smith's summary statement of evidence dated 18 May 2021 presented at the hearing.

3. Firstly, I wish to make a brief comment about matters raised in paragraphs 15 and 16 in the evidence presented by Mr Clarke at the hearing with respect to Da Nang Airport being the only airport included in the systematic review used by WHO that is comparable to WIAL. This is not consistent with the systematic review process using critically appraised research to undertake a meta-analysis to model the exposure-response function (ERF) based on total participants of 17,094.

4. The following comments are made with reference to paragraph numbers in Ms Smith's summary statement of evidence dated 18 May 2021.

5. Paragraph 6:

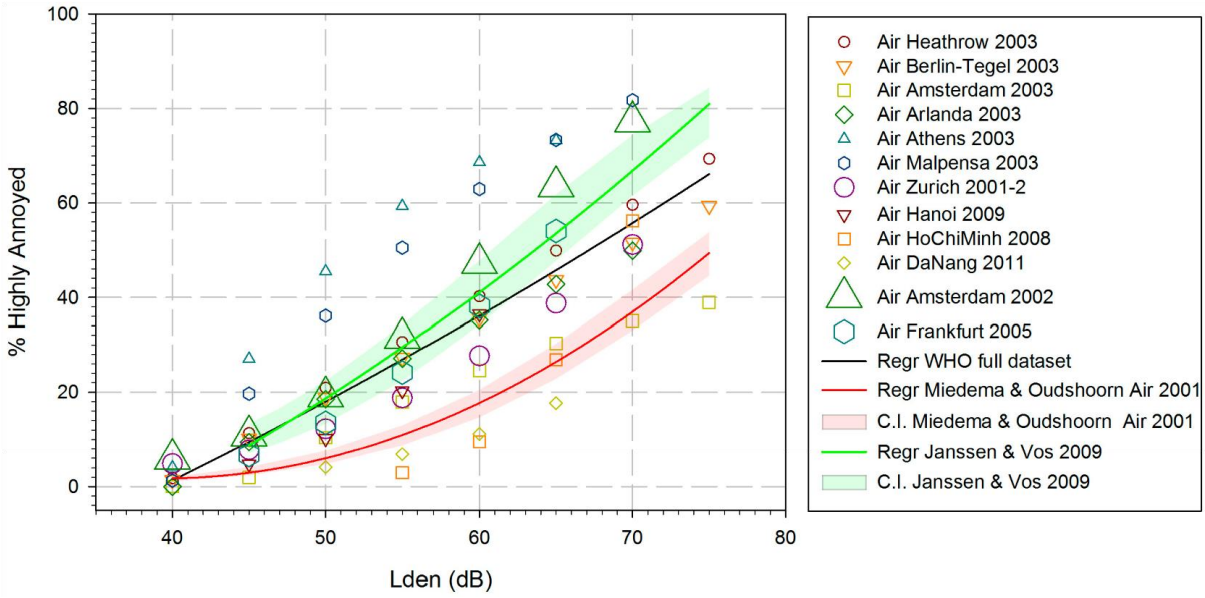
   I confirm it is correct that the extent of highly annoyed people based on the 2018 WHO systematic review[1] is greater than annoyance described in Ms Smith's February 2020 technical report. Ms Smith based her assessment on the 2001 Miedema & Oudshoorn[2] meta-analysis, which does not include more recent data that was available for the systematic review and did not apply the same level of rigor with respect to the evaluation of evidence. There are other references Ms Smith could also have used such as the 2009 Janssen & Vos[3] meta-analysis, which would give a different outcome again, though an over-estimate of the levels of people highly annoyed in that instance. The ERFs from both studies are presented in Figure 1 in my statement of evidence dated 12 May 2021 and is repeated here:

[1] 2018 World Health Organisation Regional Office for Europe, *Environmental Noise Guidelines for the European Region (the Guidelines)*

[2] Miedema, H.M.E.; Oudshoorn, C.G. Annoyance from transportation noise: Relationships with exposure Metrics DNL and DENL and their confidence intervals. Environ. Health Perspect. 2001, 109, 409–416

[3] Janssen, S.A.; Vos, H. A Comparison of Recent Surveys to Aircraft Noise Exposure-Response Relationships.In TNO Report; The Netherlands Organisation for Applied Scientific Research: The Hague, The Netherlands, 2009; 14p

Figure 1. Scatterplot and quadratic regression of the relationship between aircraft noise (L_{den}) and annoyance (%HA)



Notes:

a. ERFs by Miedema & Oudshoorn (2001, red), and Janssen & Vos (2009, green) are added for comparison.
b. The size of the data points corresponds to the number of participants in the respective study (size = SQRT(N)/10).
c. If two results from different studies fall on the same data point, the last point plotted may mask the former one.
d. The black curve is derived from aggregated secondary data, while the red and green curves are derived from individual data. In addition, the mathematical models used for establishing the three functions differ.

The 2017 WHO systematic review only used more recent studies published since 2000 and these will use more advances and robust methodologies. In my opinion greater weight can be given to the modelled ERF from the more recent meta-analysis.

6. Paragraph 7:

I do not make any recommendations as the purpose of my statement of evidence is to impartially inform the panel on the level of adverse effects on health as they relate to the Notices of Requirements being considered.

7. Paragraph 21:

In addition to my comment for paragraph 7, even if it is decided to continue with the status quo with the airport operating under the district plan provisions, a significant number of neighbours outside the ANB are likely to be highly annoyed. This will be long-term and based on the 2018 WHO systematic review will lead to higher levels of cardiovascular disease. None of the options will deliver zero adverse health effects.

8. Paragraph 22:

   Although the WHO recommendations lack the force of law, the Guideline Development Group strongly recommends decreasing permissible noise exposure levels from airports to 45dB L_{den}. At this level it is expected that 10% of those exposed will be highly annoyed. Most countries are struggling to develop policy to implement this recommendation. For example, in response to this recommendation, the UK has set up the Independent Commission on Civil Aviation Noise (ICCAN) which in March 2021 issued a "report on the future of aviation noise management".[4] This report recognises that people's lives are impacted by aviation noise, yet airports, government and local authorities are perceived not to pay for the full social cost of aviation noise, despite receiving the benefits. There is an imbalance which needs to be addressed. The effect on people's lives should be considered a priority. Airports should be encouraged to establish closer, more open and continuous working relationships with impacted communities, resulting in productive two-way conversations and better outcomes for all.

9. Paragraph 23:

   In my opinion the WHO recommendation is neither aspirational nor should be seen to be an ideal guideline. The recommendation is simply based the modelled ERF. From table one in my statement of evidence it is possible to predict the burden of highly annoyed people residing in the different noise level contours.

10. Paragraph 25:

    The authors of the systematic review responded (presented by Dr Chiles at the hearing) to the published discussion paper presented by Ms Smith and, in my view, effectively responded to the arguments of Truls Gjestland and refuted most of his critique. In particular, why the authors chose not to use the Community Tolerance Level (CTL) approach advocated by Truls Gjestland.

    The skills and expertise of the authors of the systematic review are wide ranging and include: environmental psychology; social psychology; behavioural science; social influence; statistical

[4] https://iccan.gov.uk/iccan-report-future-noise-management/

analysis; field research; public health; environmental noise and noise annoyance. In my opinion they are well qualified to undertake the systematic review.

Whereas, as far as I can ascertain Truls Gjestland only has skills and expertise in acoustics and sound. Although he was a member of the External Review Group for the development of the WHO guidelines, when I review all publications by Truls Gjestland critical of the WHO guideline I conclude that Truls Gjestland may not have a good understanding of the systematic review process including the strengths of such reviews.

Dr Stephen Palmer

MEDICAL OFFICER OF HEALTH

Friday, June 11, 2021