

# Cabinet

22 January 2015



## Separate appendices

**To: Cabinet Members  
Executive Scrutiny Committee Members  
Chief Officers**

**Copies also available online, in Group Offices and at the Cabinet meeting.**

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<b>Agenda Item</b>		
<b>6</b>	Hillingdon's response to the Airports Commission's consultation: Appraisal of Short-Listed Airport Expansion Options	<b>Appendix 2:</b> Equity Focused Review Report of the Airports Commission's Community Health Relevant Assessments

Mark Braddock  
**Democratic Services**

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Airports Commission's Assessments  
November 2014 Consultation

Equity Focused Review Report  
of the Airports Commission's  
Community Health Relevant  
Assessments

**FINAL REPORT**

January 2015

**Commissioned by the London Borough of Hillingdon**



Public Health by Design is a public health consultancy whose goal is to deliver innovative, effective and value-for-money consultancy, research and capacity building in health impact assessment, health impact evaluation, healthy urban planning and healthy public policy.

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## PHD QUALITY ASSURANCE

<b>TITLE: Equity Focused Review Report of the Airports Commission's Appraisal Framework and Community Health Relevant Assessments</b>			
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  - ❖ No third parties should make decisions based on this report without discussing it first with the Client and PhD.
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# Executive Summary

## Introduction

ES.1 This Review Report has been commissioned by the London Borough of Hillingdon (LBH).

ES.2 The aim of the Review was to review the Airports Commission's Appraisal Framework, published in April 2014, and the completed community health-relevant Assessments, published in November 2014, from a health equity perspective i.e. using a "health equity lens".

## Appraisal framework

ES.3 A specific Health Impact Assessment (HIA) within the Appraisal Framework would be (would have been) the best way of addressing the following weaknesses of the Framework.

ES.4 Firstly that the existing baseline health and wellbeing status of local communities and existing airport-related impacts are not considered as a key part of the overall assessment of the three schemes. This is inequitable because the existing burden of adverse health impacts of the existing airports and their activities is very different between Gatwick and Heathrow, i.e. many more residents around Heathrow currently experience the adverse health and wellbeing impacts of airport operations. It is also less likely to give a complete picture of the health and wellbeing impacts (the Quality of Life, Community, Air Quality and Noise assessment modules of the Airports Commission's Appraisal Framework).

ES.5 Secondly, there seems to be an implicit weighting for economic development and against health evidence by the ranking and range of wellbeing indicators being used in the Quality of Life Assessment.

ES.6 Thirdly, it is unclear how local stakeholder feedback would be incorporated into the Assessments described in the Framework. Stakeholder feedback is important in

helping to assess and provide additional evidence on the likely type and scale of impacts. (triangulation)

ES.7 Fourthly, the Department of Health and Public Health England do not seem to have been consulted during the development of the Framework.

### **Quality of life assessment**

ES.8 Aggregating positive and negative impacts is flawed and inequitable. The negative impact of noise cannot be 'bundled' together with the positive impact of employment, because most often the negative and positive impacts are experienced by different groups of people.

ES.9 There is no in-depth discussion of inequality, fairness or equity in the Quality of Life Assessment. This is a significant omission.

ES.10 Impacts on children are not considered as part of this assessment either qualitatively or quantitatively. This is a significant omission.

ES.11 The Quality of Life Assessment makes use of data obtained from a smartphone software application (Mappiness) to estimate wellbeing effects of proximity to airports. This data is unlikely to be representative of the population living in proximity to the schemes considered.

ES.12 The Quality of Life Assessment assumes an equivalence between subjective or personal wellbeing and broader concepts and measures such as the ONS national wellbeing (quality of life) scale i.e. that subjective or personal wellbeing can capture all the dimensions of quality of life and wider wellbeing. This is problematic as it can miss out important aspects of quality of life and health and wellbeing. For example, a person with a chronic health condition may have wellbeing levels similar to a person with no chronic health conditions. Using only a wellbeing measure would not necessarily be sensitive enough to pick up the fact that the person with the chronic health condition, alongside high levels of wellbeing, also has limitations to their day-to-day activities and are not able to do all the things that they may wish to do. Most measures of wellbeing or quality of life are multi-dimensional so that they can pick up

such nuances and subtleties, this is not the case in the Commission's approach. There is an over-emphasis on quantitative indicators of quality of life, placing less value on a qualitative assessment approach. This has the danger both of discounting good quality qualitative assessments and setting a precedent for future airport assessments that only quantitative impact assessment methods have value. This is contrary to international good practice.

### **Community assessment**

ES.13A fuller discussion of the implications of the loss of housing and community facilities and associated social capital and community cohesion effects on existing communities and new communities should be undertaken.

ES.14 The Index of Multiple Deprivation and national wellbeing datasets are not explicitly mentioned and do not seem to have been used to inform the Community Assessment contrary to what the appraisal framework states.

### **Place assessment**

ES.15A fuller assessment of the public and community health impacts of the loss of agricultural land; green, open and play space; and heritage should be undertaken. The permanent loss of good quality agricultural land has implications for food security and sustainability and the loss of the overall amount of greenspace also has potential adverse inter-generational and adverse health and wellbeing impacts.

ES.16 The only community health and wellbeing related analysis and discussion is on the potential loss of health centres and in relation to the health hazards associated with the management of waste.

ES.17 The waste assessment identifies potential additional noise, air quality impacts and traffic impacts from the construction and operation of airport waste collection and treatment facilities. It is currently unclear whether these potential impacts have been considered in the Noise and Air Quality Assessments

### **Local economy impact assessment**

ES.18 More detailed information on the likely mix of part-time and full-time, low vs. high skill and low vs. high paid jobs generated by the three schemes is needed to assess the quality of the employment likely to be generated, and the likely uptake of jobs by young, unemployed and deprived residents living around the schemes should be provided.

ES.19 The potential localised road impacts should be assessed quantitatively and qualitatively as these could be potential economic costs e.g. the potential for an increase in road traffic incidents, accidents and congestion on roads that are likely to get busier.

### **Noise assessment**

ES.20 Effects on children are not considered specifically and the distribution of impacts on other sensitive/vulnerable groups have been assessed only to the extent of considering three types of sensitive buildings: schools, hospitals and places of worship and their exposure to noise

ES.21 A mapping of the Index of Multiple Deprivation (i.e. overall and health deprivation and disability domains) to population density, noise contours and flight paths should be undertaken to get a better sense of how existing deprived communities are likely to be affected by the changes in noise levels, both increases and decreases.

ES.22 A more detailed description of the monetisation methodology including a worked example would be useful for assessing the validity of the methodology used as well as its applicability in future airport assessments.

### **Air quality assessment**

ES.23 The Airports Commission's Air Quality Assessment report is the first of a two-stage assessment. This stage only assesses national air quality impacts in detail. Local impacts on air quality and associated effects are not yet available. The Commission has stated this will be captured as part of a future detailed assessment. This is a significant omission in regard to this consultation.

ES.24 An impact pathway assessment approach as part of the second stage assessment should be used as this approach can provide a more comprehensive quantification of health endpoints.

### **Water and flood risk assessment**

ES.25 An estimate of the number and characteristics of people currently residing in areas of flood risk is not provided, nor how these numbers may change in the future as a result of the different schemes. This estimate would provide a good indication of the magnitude of potential human health effects due to flooding for the different schemes.

### **Conclusion**

ES.26 Overall, the Airports Commission's Assessments would have benefited from a further detailed assessment of health and health equity impacts of each potential new scheme through a separate Health Impact Assessment (HIA) that sits alongside and synthesises the findings of the suite of health-relevant assessments (including the Quality of Life Assessment) undertaken by the Airports Commission.

ES.27 The recommendations identified in this Review Report, if undertaken, are likely to improve the quality of the analysis, in regard to the health and wellbeing impacts, of the existing suite of Assessments undertaken by the Airports Commission.

# 1 Introduction

## 1.1 Background

- 1.1.1 This Review Report has been commissioned by the London Borough of Hillingdon (LBH).
- 1.1.2 The aim of the Review was to review the Airports Commission's Appraisal Framework, published in April 2014, and the completed community health-relevant Assessments, published in November 2014, from a health equity perspective i.e. using a "health equity lens".
- 1.1.3 The objectives were to:
- i. Assess how, and to what extent, the health and wellbeing impacts, and their equitable/inequitable distribution, have been taken into account.
  - ii. Provide, where possible and appropriate, recommendations for enhancing the comprehensiveness and quality of the assessments undertaken.

## 1.2 Health Equity

- 1.2.1 The World Health Organization (WHO) describes health equity in the following way:<sup>1</sup>

Equity is the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically. Health inequities therefore involve more than inequality with respect to health determinants and access to the resources needed to improve and maintain health or health outcomes. They also entail a failure to avoid or overcome inequalities that infringe on fairness and human rights norms.

Reducing health inequities is important because health is a fundamental human right and its progressive realization will eliminate inequalities that result from differences in health status (such as disease or disability) in the opportunity to enjoy life and pursue one's life plans.

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<sup>1</sup> World Health Organization (WHO). (2015). Equity. Health systems. Available at <http://www.who.int/healthsystems/topics/equity/en/>

A characteristic common to groups that experience health inequities—such as poor or marginalized persons, racial and ethnic minorities, and women—is lack of political, social or economic power. Thus, to be effective and sustainable, interventions that aim to redress inequities must typically go beyond remedying a particular health inequality and also help empower the group in question through systemic changes, such as law reform or changes in economic or social relationships.

Internationally the WHO Commission on the Social Determinants of Health in “Closing the Gap in a Generation” (2008) and the Marmot Review in the UK in “Fair Society, Healthy Lives” (2010) demonstrated and advocated the importance of considering health inequities and inequalities when assessing the health and wellbeing impacts of policies and projects.<sup>2,3</sup>

### **1.3 Health Impact Assessment (HIA)**

1.3.1 The international Gothenburg consensus definition of HIA is: “A combination of procedures, methods and tools by which a policy, program or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.”<sup>4</sup>

1.3.2 The more recent International Association for Impact Assessment’s definition of HIA, which updates the earlier Gothenburg Consensus definition, is that HIA is:

1.3.3 “A combination of procedures, methods and tools that systematically judges the potential, sometimes unintended, effects of a policy, plan, programme or project on the health of a population, including the distribution of those effects within the population, and identifies appropriate actions to manage those effects.”<sup>5</sup>

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<sup>2</sup> World Health Organization (WHO). (2008). Closing the gap on a generation: Health equity through action on the social determinants of health. Commission on Social Determinants of Health. Available at: <http://www.instituteoftheequity.org/projects/commission-on-social-determinants-of-health>

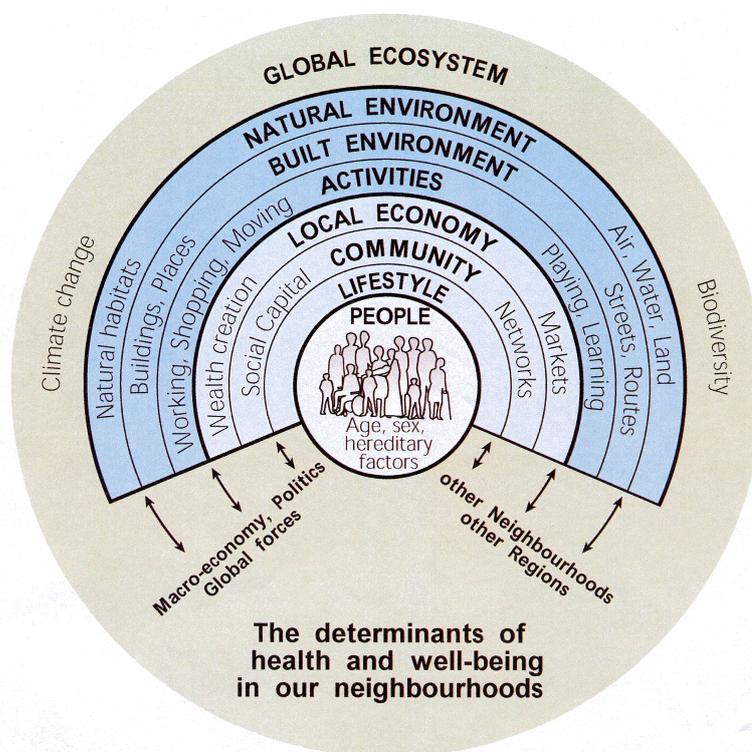
<sup>3</sup> The Marmot Review. (2010). Fair Society, Healthy Lives: Strategic Review of Health Inequalities in England post-2010.

<sup>4</sup> WHO European Centre for Health Policy. (1999). Health impact assessment: main concepts and suggested approach. Gothenburg consensus paper. WHO Regional Office for Europe.

<sup>5</sup> International Association for Impact Assessment. Health Impact Assessment International Best Practice Principles. Special Publication Series No. 5. Fargo, USA. 2006.

1.3.4 HIA uses both a biomedical and social definition of health, recognising that though illness and disease (mortality and morbidity) are useful ways of measuring health they need to be fitted within a broader understanding of health and wellbeing to be properly useful (see Figure 1). This definition builds on and is complementary to the longer established World Health Organization definition that "Health is a state of complete physical, social and mental wellbeing and not simply the absence of disease or infirmity".<sup>6</sup>

**Figure 1 Determinants of health and wellbeing<sup>7</sup>**



<sup>6</sup> World Health Organization. (1948). Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference. New York, 19-22 June 1946, and entered into force on 7 April 1948.

<sup>7</sup> Department of Health. (2007). Draft guidance on health in strategic environmental assessment. Original Source: Hugh Barton and Marcus Grant (2006), drawing on Whitehead and Dahlgren (1991) and Barton (2005). United Kingdom Public Health Association (UKPHA) Strategic Interest Group and the WHO Healthy Cities Programme.

## 2 Methodology and Scope of this Review

### 2.1 Introduction

2.1.1 The Review reviewed the following key documents:

- Appraisal Framework
- Quality of life assessment
- Community assessment
- Place assessment
- Local economy impact assessment
- Noise assessment
- Air quality assessment
- Water and flood risk assessment

2.1.2 Literature review and baseline documents were not reviewed in detail except where they materially affected how the assessment was undertaken i.e. the assessment methodology/approach used for each of the above topics.

2.1.3 Proponents submissions were also not reviewed in detail except for key health-relevant sections where they helped gain an understanding of comments and judgments made in the Airports Commissions' Assessments.

### 2.2 Review approach

2.2.1 All documents were reviewed by at least two members of the team.

2.2.2 The review findings were then peer reviewed by two HIA Practitioners with experience of health impacts of an airport and other infrastructure projects in England.

2.2.3 Where appropriate and possible key references mentioned in the above documents were reviewed.

2.2.4 Notes were made and preliminary synthesis review briefings were produced.

2.2.5 The preliminary review briefings were then reviewed and commented on by officers at LBH.

2.2.6 Where recommendations are identified for improving the comprehensiveness and quality of the assessments they take account of the constraints and limitations discussed within the assessments documents i.e. the recommendations are extensions of the existing methodologies used and based on existing data sets.

### **2.3 Limitations of this Review**

2.3.1 The main limitation of this review is the availability of additional material e.g. detailed descriptions of the assessment methodology used and the actual quantification of health and wellbeing effects of noise to obtain the final monetisation figures.

## 3 Appraisal Framework

### 3.1 Introduction

3.1.1 A review of the Airports Commission's Appraisal Framework was undertaken to examine whether the approach set out for the health relevant appraisal modules is in line with public health and health impact assessment best practice and whether there were any potential gaps in the appraisal framework that would mean that key health and wellbeing issues and impacts were not considered or not considered fully or appropriately.

### 3.2 Equity-focused criteria used to review the Appraisal Framework

3.2.1 The following criteria were used to review the Airports Commission's Appraisal Framework.

3.2.1.1 An appropriate range of stakeholders have been involved.

3.2.1.2 An appropriate range of environmental and social determinants of health has been considered.

3.2.1.3 An appropriate time period has been considered for health and wellbeing impacts.

3.2.1.4 An appropriate range of possible future (health relevant) scenarios has been considered.

3.2.1.5 An appropriate range of baseline health and wellbeing issues has been considered.

3.2.1.6 Distributional impacts and health equity/inequality issues have been considered.

3.2.1.7 The best available evidence on health and wellbeing impacts, both scientific and community, has been considered.

3.2.1.8 Both qualitative and quantitative analytical methods are considered and given equal weight.

3.2.1.9 Assumptions are made explicit and uncertainties are considered and taken into account.

3.2.1.10 Health impacts are given an appropriate weighting either implicitly or explicitly.

### **3.3 Review findings**

#### **3.3.1 The range of stakeholders involved in developing the Framework?**

The Department of Health and Public Health England do not seem to have been consulted, though the Commission has been guided by its Sustainability Reference Group (an advisory body comprising relevant Government departments, the Environment Agency, Natural England and English Heritage) and by members of its expert advisory panel.

#### **3.3.2 The range of environmental and social determinants of health that the Framework considers?**

A range of determinants has been included in the Appraisal Framework however how the community-level physical health, mental health and wellbeing impacts that arise from each of the determinants and their associated Assessments is not stated. Key determinants and objectives included:

##### **3.3.2.1 Economy impacts (national and local)**

- To maximise economic benefits and support the competitiveness of the UK economy.
- To promote employment and economic growth in the local area and surrounding region.
- To produce positive outcomes for local communities and the local economy from any surface access that may be required to support the proposal.

##### **3.3.2.2 Access**

- To maximise the number of passengers and workforce accessing the airport via sustainable modes of transport.
- To accommodate the needs of other users of transport networks, such as commuters, intercity travellers and freight.
- To enable access to the airport from a wide catchment area.

3.3.2.3 Noise

- To minimise and where possible reduce noise impacts.

3.3.2.4 Air quality

- To improve air quality consistent with EU standards and local planning policy requirements.

3.3.2.5 Water and flood risk

- To protect the quality of surface and ground waters, use water resources efficiently and minimise flood risk.

3.3.2.6 Place

- To minimise impacts on existing landscape character and heritage assets.

3.3.2.7 Quality of life

- To maintain and where possible improve the quality of life for local residents and the wider population.

3.3.2.8 Community

- To manage and reduce the effects of housing loss on local communities.
- To reduce or avoid disproportionate impacts on any social group.

3.3.3 The time period considered for health and wellbeing impacts in the Appraisal Framework is appropriate?

An appropriate time period for health and wellbeing impacts has been considered. In most instances a 60 year time period was used from construction through to initial operation and mature operation for the business case appraisal except where methodological constraints meant a shorter time period was more appropriate.

3.3.4 The range of possible future (health relevant) scenarios considered in the Framework?

The Framework stated that the Assessments would consider dynamic and uncertain future scenarios.

3.3.5 The range of baseline health and wellbeing issues considered in the Framework?

A key weakness of the Framework is that it assesses only changes in noise, air quality and other aspects from the three schemes. This has meant that only the net changes in health and wellbeing impacts were considered and not the extent and magnitude of the existing burden noise and air quality and other operational activities that generate potential health and wellbeing impacts. Good practice dictates that the absolute impacts of the airport as a whole (without which the new scheme would not be able to operate)

and the existing population being affected should be taken into account and assessed. The assumption seems to be that existing health and wellbeing impacts are acceptable and accepted by existing communities and that the existing baseline conditions have no significant negative health and wellbeing impacts. By assuming that the existing baseline is acceptable the Assessment Framework also implicitly implies that existing mitigation measures are effective. However, this may not be the case. A good way of finding out whether this was the case is through local stakeholder feedback.

3.3.6 There was no discussion on the kind of public health information that would be used to develop the community profile and the baseline that would support the analysis of potential health and wellbeing impacts.

3.3.7 The distributional impacts and health equity/inequality issues considered in the Framework?

One of the objectives of the Framework was to reduce or avoid disproportionate impacts on any social group.

3.3.7.1 However, the Framework does not require an assessment of the absolute impacts of the existing airport alongside those of the new scheme. This means that existing adverse health and wellbeing impacts of the existing airport operations are not considered. Not considering this is inequitable because it does not address the existing inequalities experienced by those currently living near the airports where schemes would be developed. It also does not take account of the fact that the numbers of people experiencing adverse impacts currently is very different between the schemes i.e. many more residents around Heathrow currently experience the adverse health and wellbeing impacts of airport operations, and will be further negatively impacted in the future from the airport scheme, than Gatwick.

3.3.7.2 The Community Assessment requires an equalities screening and as part of this a local community profile to help predict the potential changes to local communities. This profile would identify households at risk of isolation, severance and diminished access, as well as impacts on community identity. The assessment would also include engagement with a range of local

stakeholders and subject matter experts. It also aims to consider the existing community historically, currently and in the future and would use the Index of Multiple Deprivation as well as the national wellbeing dataset.

3.3.7.3 The Quality of Life Assessment aims to consider a range of national wellbeing indicators to assess quality of life.

3.3.7.4 Though the Airports Commission's Appraisal Framework states that "...it does not intend to specify any weightings in relation to individual modules..." the implicit ranking of quality of life impacts in the list described shows Education and Skills, Economy, Governance and Natural Environment having a higher implicit importance than (Our) Relationships and Health. In contrast the listing used by the Office for National Statistics on their website is a much more logical fit with how most people consider wellbeing and quality of life (see Table 1).

**Table 1: The Airports Commission's Appraisal Framework's listing of wellbeing indicators versus the Office for National Statistics (ONS) listing (implicit ranking)**

<b>Airports Commission's Appraisal Framework</b>	<b>Office for National Statistics' website</b>
Education and Skills	Personal Well-being
Economy	Our Relationships
Governance	Health
Natural Environment	What we do
Relationships	Where we live
Health	Personal finance
What We Do	Economy
Where We Live	Education and skills
Personal Finance	Governance
	Natural environment

3.3.8 The best available evidence on health and wellbeing impacts, both scientific and community, is considered in the Framework?

The aim was for the Assessments to be robust and use a range of evidence including feedback from local stakeholders.

3.3.9 Both qualitative and quantitative analytical methods are considered and given equal weight in the Framework?

The Framework aims for the Assessments to use both quantitative and qualitative

methods. There is no explicit discussion of how quantitative and qualitative methods and findings will be weighted.

3.3.10 Assumptions are made explicit and uncertainties are considered and taken into account in the Framework?

The Frameworks aims for Assessments to use logic and best-practice guidance when considering uncertainties.

3.3.11 Health impacts are given an appropriate weighting either implicitly or explicitly in the Framework:

While there is recognition that many aspects of the Airports Commission's Appraisal Framework relate to health and wellbeing it is unclear how health impacts will be synthesised (coherently and holistically considered) and weighted.

### **3.4 Conclusions**

3.4.1 A review of the Airports Commission's Appraisal Framework, October 2014, identified the following weaknesses of the Airports Commission's Appraisal Framework:

3.4.1.1 Firstly that the existing baseline health and wellbeing status of local communities and existing airport-related impacts are not considered as a key part of the overall assessment of the three schemes. This is inequitable because the existing burden of adverse health impacts of the existing airports and their activities is very different between Gatwick and Heathrow, i.e. many more residents around Heathrow currently experience the adverse health and wellbeing impacts of airport operations. It is also less likely to give a complete picture of the health and wellbeing impacts (the Quality of Life, Community, Air Quality and Noise assessment modules of the Airports Commission's Appraisal Framework).

3.4.1.2 Secondly, there seems to be an implicit weighting for economic development and against health evidence by the ranking and range of wellbeing indicators being used in the Quality of Life Assessment.

3.4.1.3 Thirdly, it is unclear how local stakeholder feedback would be incorporated into the Assessments described in the Framework. Stakeholder feedback is

important in helping to assess and provide additional evidence on the likely type and scale of impacts (triangulation).

3.4.1.4 Fourthly, the Department of Health and Public Health England do not seem to have been consulted during the development of the Framework.

3.4.2 A specific Health Impact Assessment within the Appraisal Framework would have been the best way of addressing the above weaknesses.

## 4 Quality of Life Assessment

### 4.1 Introduction

4.1.1 A review of the Airports Commission's Quality of Life Assessment was undertaken to:

4.1.1.1 Assess how and to what extent the health and wellbeing impacts, and their equitable/inequitable distribution, have been taken into account.

4.1.1.2 Provide, where possible and appropriate, recommendations for enhancing the comprehensiveness and quality of the assessment undertaken.

### 4.2 Review findings

4.2.1 The conceptualisation of quality of life is unclear, inconsistent and not coherent:

4.2.1.1 The Quality of Life Assessment assumes an equivalence between quality of life, general wellbeing (e.g. as defined by the Office for National Statistics (ONS) in their National Wellbeing set of indicators) and subjective/personal wellbeing. This assumes that an assessment of subjective/personal wellbeing is a good indicator of both general wellbeing and quality of life. Like the ONS personal wellbeing indicator subjective/personal wellbeing is considered in the Assessment to be made up of four aspects (Figures 1 and 2, Pages 2 and 13 of the Quality of Life Assessment):

- personal ratings of life satisfaction,
- happiness yesterday,
- anxiety yesterday and
- life feeling worthwhile.

4.2.1.2 The problem with this conceptualisation is that Quality of Life and General Wellbeing are broader and multi-dimensional concepts, i.e. composite measures or indicators. This means that the Quality of Life Assessment is actually only a Subjective Wellbeing Assessment. Subjective/personal wellbeing does link into the other dimensions of quality of life but without a

more detailed analysis of, for example, Health and Our Relations it cannot fully capture the texture and fabric of what makes a good or less good quality of life. For example, a person with a chronic health condition may have wellbeing levels similar to a person with no chronic health conditions. Using only a wellbeing measure would not necessarily be sensitive enough to pick up the fact that the person with the chronic health condition alongside high levels of wellbeing also has limitations to their day-to-day activities and are not able to do all the things that they may wish to do. Most measures of wellbeing or quality of life are multi-dimensional so that they can pick up such nuances and subtleties.

4.2.1.3 The Assessment then develops a logic model (Figure 3, Page 22; Quality of Life Assessment) that identifies Job, Finance, House, Health, Leisure and Environmental Wellbeing domains that are part of Subjective Wellbeing alongside or leading to Evaluative, Affective and Eudemonic Wellbeing. This is not related back to the original discussion where the ONS wellbeing dimensions are related to the four aspects of subjective/personal wellbeing: life satisfaction, happiness yesterday, anxiety yesterday and life feeling worthwhile.

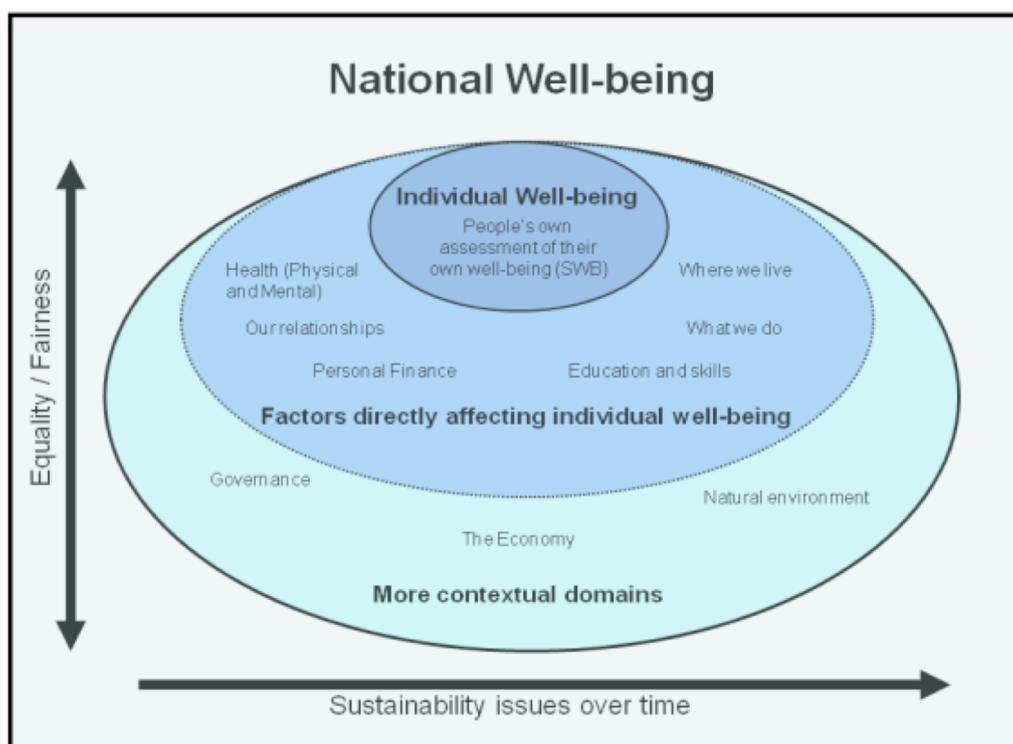
4.2.1.4 The implication of Figure 3, Page 22 is that assessment modules national economy, local economy, surface access, noise, air quality, biodiversity, water and flood risk, place and community are equivalent to the ONS wellbeing dimensions of personal wellbeing, our relationships, health, what we do, where we live, personal finance, the economy, education and skills, governance and the natural environment. However, while there is some overlap they do not encompass the same things and are not equivalent.

4.2.2 There is no discussion of inequality, fairness or equity in the Quality of Life Assessment. The exceptions are three tables (Tables 1, 2 and 6; Quality of Life Assessment) which present the assessment modules, their objectives and their key indicative outcomes and a mention that inequality of income is an important issue (Section 2.5.3, Page 24, Quality of Life Assessment). The ONS conceptualisation of wellbeing considers equality/fairness

as a key issue that needs to be assessed when measuring wellbeing<sup>8</sup> and states the following:

"[Figure 2, see below] also shows that individual well-being is best understood by relating it to areas that directly affect overall individual well-being, as well as to more contextual domains that are important but contribute less directly to individual well-being. The overall effect of these different factors varies for different individuals, raising important considerations for analysis and policy beyond looking at individual well-being. The figure therefore also shows that equality, fairness and sustainability issues are part of national well-being measures." This lack of discussion on existing inequalities, distribution of impacts and potential inequity is a significant omission.

**Figure 2 National wellbeing framework<sup>8</sup>**



4.2.3 The Assessment uses population level noise data and relates this to individual level wellbeing data. This is a form of ecological analysis and while it can identify hypotheses that merit further investigation, in public health epidemiology it is generally not used on

<sup>8</sup> Beaumont J. (2011). Measuring National Well-being: A discussion paper on domains and measures. Office for National Statistics.

its own to show causal links or associations, e.g. between wellbeing and noise and proximity to airports, because of the limitations inherent to this study design. These limitations are, among others, the potential for the “ecological fallacy” i.e. the problem of thinking an observed population level association or causal relationship also applies at the individual level and the greater potential for the misclassification of an exposure. Data from other types of study designs that can provide more detailed individual level noise exposure, proximity and personal characteristics data would be needed to overcome the above limitations. For example, a resident close to the airport may work far from home where their workplace noise exposure is much lower. Using the population level maximum noise exposure at their home as a proxy for their daily noise exposure would give an over estimate of their actual noise exposure during the day and, therefore, when linked to their self-perceived wellbeing status potentially underestimate the adverse wellbeing effects of noise at home location.

- 4.2.4 The Mappiness dataset is not robust enough to quantitatively estimate the wellbeing effects or to use the resulting estimates to value compensation, mitigation and enhancement measures. This is because it is made up of a self-selected group of people who are using the Mappiness smartphone software application (app) and though key socio-economic characteristics are captured there is likely to be significant self-selection bias in the population of people who input information into the app on a regular basis. This decreases the representativeness of this sample group in relation to the population likely to be exposed to noise around the three schemes. In addition, though a range of activities and locations are captured in the app, change in happiness can be linked to issues that are not captured by the app e.g. personal, family, financial and other worries that are unrelated to the people respondents are with and the activities they are undertaking.
- 4.2.5 The analysis is undertaken using a <3km, 3-4km, 5-5km, 5-7km, 7-11km, and 11-15km bands around an airport scheme as the criteria for airport proximity. This may not capture the full adverse effects of proximity. This is because it can dilute effects in close proximity to an airport e.g. up to 1 km from the airport boundary. It would therefore have been useful to use shorter distance bands e.g. <1km, 1-2km, 3-4km bands.

4.2.6 Aggregating the negative effects of noise and the positive effects of employment, both in terms of developing an aggregate wellbeing measure and monetising the aggregated figures generated is flawed for the following reasons in order of importance:

4.2.6.1 The positives do not fall on the same people as the negatives. Summing them together, as the Quality of Life Assessment does, explicitly and implicitly assumes that the same people experience both the beneficial (positive) and detrimental (negative) health and wellbeing impacts. This is despite some discussion in the Assessment presenting the opposite case. These figures cannot be summed except in, for example, cases where people are employed at an airport (or assumed to be employed in a future airport expansion) and also suffer from high levels of aircraft noise where they live.

4.2.6.2 Children are specifically excluded as a group from the quantified estimates, and no effort is made to fill this gap by some sort of proxy quantitative estimate or qualitative discussion. This creates a spurious sense of precision that all wellbeing costs and benefits of noise and employment have been estimated and monetised (the main negative and positive exposures) when in fact there is a wellbeing (and health) cost on children without the associated, or at least the same level of, benefits of an airport as for adults. For example, children would have no or only indirect benefit of employment. Indirect benefits if their parents are working at the airport or will be in the future airport development. They would also experience both the costs and benefits of surface access e.g. costs of increased motor vehicle traffic flows in and around residential areas near the airport and/or benefits of improved public transport.

4.2.6.3 There is good evidence showing that losses or costs are valued more highly than gains i.e. that losing something can feel twice as worse as gaining the same thing.<sup>9</sup> This evidence is not incorporated into the Quality of Life

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<sup>9</sup> Daniel Kahneman, Jack L. Knetsch and Richard H. Thaler (1990). "Experimental Tests of the Endowment Effect and the Coase Theorem". *Journal of Political Economy* 98 (6): 1325–1348.

Assessment. Instead the Assessment implicitly and explicitly assumes that a unit of wellbeing gained is equivalent to a unit of wellbeing lost.

4.2.6.4 From an equity/inequalities perspective, the Assessment's position on the equivalence of gains and losses means that a gain of wellbeing by a socio-economically well off person is equivalent to the loss of wellbeing in a socio-economically worse off person. This is despite some of the Quality of Life's own evidence showing that noise has greater impacts on those living in social housing. So while there is a mention of distributional issues there is no discussion or assessment of the social and health inequality and equity impacts. Furthermore, there was no discussion of how these could be factored into the quantitative estimates developed both for the positive and negative effects of airport expansion on wellbeing or the monetised costs and benefits.

4.2.7 The Summary of Appraisal Framework Modules, objectives and likely outcomes (Table 1, Page 3 in the Quality of Life Assessment Report) identifies the key outcomes of the appraisal framework but does not consider distributional and equity issues. For example:

- For 5 Noise, change in noise impacts should be change in noise impacts and numbers of people experiencing adverse changes, in absolute terms and relatively in comparison to the existing baseline exposure
- Same for 6 Air Quality
- Same for 9 Water and Flood Risk
- For 11 Quality of Life, change in subjective wellbeing should be a consideration of the ten dimensions of quality of life
- For 12 Community, loss of housing should be loss of or disruption to coherent communities and loss of, or disruption to, social capital and community cohesion through loss of housing and facilities
- For 12 Community, Inequality of impact should have been equity and inequality of impact – narrowing and widening – for all the assessment modules and not just 12 Community.

4.2.8 Table 1 below, (Table 3, Page 17, Quality of Life Assessment), does not identify all the relevant Appraisal Modules that are relevant to the Health, Our Relationships and Where We Live Domains in particular. A revised version of this table is presented in Table 2.

**Table 1 Indicative effects of Appraisal Framework module outcomes on ONS Measures of National Wellbeing (Table 3, Page 17, Quality of Life Assessment)**

		Appraisal Framework Modules											
		Economy impacts (2)	Local economy impacts (3)	Surface access (4)	Noise (5)	Air quality (6)	Biodiversity (7)	Carbon (8)	Water and flood risk (9)	Place (10)	Community (12)		
ONS Measures of National Wellbeing	Our relationships	Satisfaction with family life											
		Satisfaction with social life											
		Someone to rely on											
	Health	Healthy life expectancy at birth		X		X	X						X
		Illness and disability		X		X	X						X
		Satisfied with health		X		X	X						X
		Mental ill health		X		X	X						X
	What we do	Unemployment rate	X	X									
		Satisfaction with job	X	X									
		Satisfaction with leisure time	X	X	X								
		Volunteering											
		Engagement with arts/culture											
		Sports participation											
	Where we live	Crimes against the person											
		Safe walking after dark											
		Accessed natural environment				X		X		X		X	X
		Neighbourhood belonging		X									X
		Transport access to services		X	X								X
Satisfaction with accommodation			X		X				X				

**Table 2 Revised version of the Quality of Life Assessment's 'Indicative effects of Appraisal Framework module outcomes on ONS Measures of National Wellbeing**

Identified in Airports Commission's Quality of Life Assessment	X
Additional aspects that should be covered within the suite of Airports Commission's Assessments	X
Aspects covered in Quality of Life Assessment but not presented in the table in the Assessment	X

		Appraisal Framework Modules											
		Economy impacts	Local economy impacts	Surface access	Noise	Air quality	Biodiversity	Carbon	Water and Flood Risk	Place	Community	Quality of Life	
ONS Measures of National Wellbeing	Personal wellbeing	Life satisfaction										X	
		Life worthwhile										X	
		Happiness yesterday											X
		Anxiety yesterday											X
		Population mental wellbeing											X
	Our relationships	Satisfaction with family life										X	X
		Satisfaction with social life										X	X
		Someone to rely on										X	X
	Health	Healthy life expectancy at birth		X	X	X	X	X		X	X	X	X
		Illness and disability		X	X	X	X	X		X	X	X	X
		Satisfied with health		X	X	X	X	X		X	X	X	X
		Mental ill health		X	X	X	X	X		X	X	X	X
	What we do	Unemployment rate	X	X									X
		Satisfaction with job	X	X									X
		Satisfaction with leisure time	X	X	X								X
		Volunteering		X								X	X
		Engagement with arts/culture											X
		Sports participation			X			X				X	X
	Where do we live	Crimes against the person											X
		Safe walking after dark											X
		Accessed natural environment				X		X			X	X	X
		Neighbourhood belonging		X								X	X
		Transport access to services		X	X							X	X
Satisfaction with accommodation			X		X				X	X	X	X	
Personal finance	Less than 60% median income		X								X	X	
	Median household wealth	X	X									X	
	Median household income	X	X									X	

		Appraisal Framework Modules											
		Economy impacts	Local economy impacts	Surface access	Noise	Air quality	Biodiversity	Carbon	Water and Flood Risk	Place	Community	Quality of Life	
	Satisfaction with income	X	X							X	X	X	
	Reported difficulty with finances	X	X									X	
	Economy	Real net national income per	X	X									X
		Public sector net debt											X
		Inflation											X
		Human capital	X	X								X	X
	Education and skills	Five or more GCSEs											X
		No qualifications											X
	Governance	Voter turnout											X
		Trust in government											X
	Natural environment	Greenhouse gas emissions							X				X
		Protected areas in the UK						X					X
		Renewable energy consumption					X		X				X
		Recycling rates					X		X				X

- 4.2.9 There is a short discussion on the quality of the Quality of Life assessments undertaken by the three proponents. The assessment judges all the assessment to be inadequate i.e. not conducting an analysis of the impact on subjective wellbeing. However, having reviewed the original submissions by the three proponents, it is important to recognise that the Gatwick Quality of Life assessment is a better quality, more detailed assessment and much more in line with UK and international Health Impact Assessment good practice than the assessments provided by the two Heathrow Schemes. The Airports Commission's focus on the need to provide quantitative indicators of Quality of Life (i.e. a set of comparable metric) has placed less value on a qualitative assessment approach and hence is in danger both of discounting good quality qualitative assessments and setting a precedent that only quantitative impact assessment methods have value in the assessment of airport schemes nationally and locally (See also Paragraphs 4.2.6.2 and 4.2.6.4). This runs counter to international good practice guidance on health impact assessment (HIA) advocated by the World Health Organization as well as past UK, England and devolved regions government guidance on the value of both qualitative and quantitative assessment of health and wellbeing impacts of policies and projects.
- 4.2.10 Presenting the positives and negatives separately (as done by the proponents assessment) rather than developing a single overall quantitative measure (as recommended implicitly in the Quality of Life Assessment) that merges positives and negatives is also important because, as discussed previously, the positives and negatives are likely to be experienced predominantly by different groups of people within affected communities.
- 4.2.11 Potential market and non-market impacts associated with Appraisal Framework Modules and outcomes linked to subjective wellbeing (Table 12, Page 45 in the Quality of Life Assessment Report) should include the following:

**Potential market and non-market impacts associated with Appraisal Framework Modules and outcomes linked to subjective wellbeing**

<b>Appraisal Framework Module</b>	<b>Market Impacts</b>	<b>Non-Market Impacts</b>	<b>Comments</b>
Local economy		Health benefits	
Surface access		Health costs Health benefits	Distributional issues
Noise			Distributional issues
Air quality			Distributional issues
Water and flood risk		Wellbeing Health costs	Distributional issues
Place		Health costs	Distributional issues
Community		Health costs	Distributional issues

4.2.12 The example of lower house prices as a form of market compensation for living near an airport is not appropriate. It is only true when a household moves into a home with a fixed level of disbenefits for the duration they live there e.g. when buying a house with a certain level of aircraft noise and the level of disbenefits is not exceeded during the whole time that a family lives there. It breaks down for:

- people who already own their own homes and aircraft noise increases because market forces is likely to lead to a reduction in the value of the home (or a slower and lower increase compared to homes elsewhere); and
- people who live in areas where other residents are having to relocate because the land is needed for a scheme as the loss of these residents, and their families, can lead to a significant loss of community and sense of place (with or without any additional increase in aircraft noise) making the area less desirable to live in. This in turn can reduce the financial value of their home.

4.2.13 The table of illustrative mitigation options addressing the Airports Commission Appraisal Framework outcomes that are linked to subjective/personal wellbeing (Table 13, Pages 51-52 in the Quality of Life Assessment Report) though showing illustrative options unfortunately presents general and vague measures that are unlikely to enable a quantification of wellbeing effects or the monetisation of cost and benefits. Evidence in the area of mitigation and enhancement is much poorer than evidence of health and

wellbeing effects. Therefore it is likely that there will be little or no evidence that the general mitigations measures identified in the Assessment would lead to specific measurable improvements in wellbeing.

### **4.3 Recommendations**

- 4.3.1 The analysis is undertaken using a <3km boundary from an airport as the criteria for airport proximity. This may not capture the full adverse effects of proximity. It would therefore have been useful to use shorter distance bands e.g. <1km, 1-2km, 3-4km bands.
- 4.3.2 It is important to map the indices of deprivation to the two datasets to see if deprivation – overall, health and disability – is associated with any additional reduction in subjective/personal wellbeing when combined with higher ambient noise levels and proximity to the airport both during the daytime and at night.
- 4.3.3 The Quality of Life Assessment was an opportunity to synthesise and bring together the disparate health and wellbeing findings and undertake additional analysis on health and wellbeing impacts. Instead the focus is on a narrow definition of quality of life as subjective/personal wellbeing.
- 4.3.4 There is therefore still a need for a synthesis and holistic analysis of the possible and likely health and wellbeing impacts of the three schemes.

## 5 Community Assessment

### 5.1 Introduction

5.1.1 A review of the Airports Commission's Community Assessment was undertaken to:

5.1.1.1 Assess how and to what extent the health and wellbeing impacts, and their equitable/inequitable distribution, have been taken into account.

5.1.1.2 Provide, where possible and appropriate, recommendations for enhancing the comprehensiveness and quality of the assessment undertaken.

### 5.2 Review findings

5.2.1 The focus of the assessment is on managing and reducing the effects of housing loss on communities and reducing and avoiding the disproportionate impacts on any social group. What the assessment actually does is:

5.2.1.1 Review, and to a large extent assume the feasibility and effectiveness of, the proponents mitigation and enhancement measures, and suggest some possible mitigations measures, to manage and reduce the effects of housing (and amenity loss) on local communities.

5.2.1.2 Assess via an equalities screening the extent of disproportionate impacts and review the conclusions and mitigations measures set out in the proponents equalities screening with a view to judging whether they would reduce or avoid disproportionate impacts on any social group.

5.2.2 The high level equalities screening, does not look at inequality and equity issues in depth and also does not seem to provide the depth of baseline information described in the Appraisal Framework (see Paragraph 3.3.7.2) i.e. information to identify the likely households at risk of isolation, severance and diminished access, as well as the potential impacts on community identity (Page 98; Airports Commission's Appraisal Framework).

5.2.3 It is also unclear how local stakeholder feedback and subject matter experts have informed the Assessment (see Paragraph 3.3.7.2 and Page 99; Airports Commission's Appraisal Framework).

- 5.2.4 The Index of Multiple Deprivation and national wellbeing datasets are not explicitly mentioned and do not seem to have been used to inform the Community Assessment contrary to what the appraisal framework states (see Paragraph 3.3.7.3).
- 5.2.5 The community profile consists of age, gender, religion/belief, ethnicity, women's employment status, occupation type and educational achievement. No information is provided on disability and pregnancy/maternity (no information is provided for sexual orientation and gender reassignment but it can be argued that airport development is unlikely to have any specific disproportionate impact on residents because of sexual orientation or gender reassignment). The indices of deprivation provide a simple measure of Health and Disability by geographical area (Lower Super Output Area, LSOA)<sup>10</sup> as well as Living Environment and Access to Services. These deprivation domains overlain on the existing airport footprint and the airport expansion footprint of the three schemes would strengthen the analysis of the potential of the schemes to disproportionately affect certain social groups i.e. would enable a better examination of the equity and inequality impacts of airports and airport expansion (the three schemes). Other useful ward level health statistics are available at the Public Health England site [localhealth.org.uk](http://localhealth.org.uk).
- 5.2.6 There is an over emphasis in the Assessment on planning permission/sympathetic planning being a key issue (and hence implicitly a key barrier) for the likely scope and effectiveness of mitigation measures. This should be mentioned but not presented repeatedly in the way that it is as it implies that local council's have significant leeway in how they implement national and local planning regulations when they mostly do not.
- 5.2.7 The option of 'moving en masse' is given a lot of weight even though the reasons why this is unlikely to happen are discussed in the Assessment. The possibility of moving en masse should be mentioned and discussed but should not be presented or considered as a viable mitigation option.

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<sup>10</sup> Super Output Areas were designed to improve the reporting of small area statistics and are built up from groups of Output Areas. Lower Layer Super Output Areas (LSOAs) are generally the smallest scale that routine statistics go down to. They are geographical areas that have between 1,000-3,000 people and between 400-1,200 households

- 5.2.8 A fuller discussion of the implications of the loss of housing and community facilities and associated social capital and community cohesion effects on existing communities and new communities would have been useful. This would have highlighted that even if planning permitted displaced communities could move en masse and into the same new neighbourhood, a very unlikely scenario, it is still not likely that it would fully mitigate the likely adverse effects on social capital and community cohesion. The social capital and community cohesion, as 'concept' and real lived experience, cannot be easily transplanted into a new community and area but would need to re-created and re-generated i.e. they are unlikely to be able to all live together in the same road or set of roads or in the same configuration of roads, have similar access to services and amenities and additionally there would be existing residents who they would need to develop relationships with.
- 5.2.9 Where there is uncertainty in the mitigation of housing loss, i.e. it is dependent on certain conditions, it is more accurate and precise to give a range for the likely extent of mitigation e.g. instead of "full, depending on alternative facilities being large enough" it is more accurate to say "partial-full, depending on alternative facilities being large enough".
- 5.2.10 The maps at the end are poor resolution and do not enable any review/analysis of what has been considered.
- 5.2.11 Anecdotal and some research evidence suggests that people generally feel they are not compensated enough for the time, trouble, uncertainty (life in limbo) that they have to endure from forced relocation within set timescales.<sup>11 12</sup> This aspect is not considered in the Assessment.

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<sup>11</sup> Institute of Occupational Medicine. (2012). Londonderry to Dungiven A6 Road Dualling Scheme Health Impact Assessment. Northern Ireland Roads Service. Available at [http://www.drdni.gov.uk/index/roadimprovements/schemes/derry-dungiven/a6ld\\_project\\_documents.htm](http://www.drdni.gov.uk/index/roadimprovements/schemes/derry-dungiven/a6ld_project_documents.htm)

<sup>12</sup> Hutt Valley District Health Board Regional Public Health. (2011). Housing displacement and health: a summary of the impacts of housing displacement on health and wellbeing. Greater Wellington. New Zealand.

### **5.3 Recommendations**

ES.28A fuller discussion of the implications of the loss of housing and community facilities and associated social capital and community cohesion effects on existing communities and new communities should be undertaken.

5.3.1 For example, a further analysis using the Index of Multiple Deprivation (IMD) - overall, health deprivation and disability, access to services and living environment – can be done. Deprivation can be mapped onto the existing airport footprints and new scheme footprints and the mapping qualitatively discussed. If IMD was linked to information on numbers of and the characteristics of households and residents in an LSOA, then this would provide some quantitative information on what deprived areas and groups are likely to be affected by loss of housing and community facilities and the potential severity of the impact on social capital and community cohesion given existing levels of deprivation.

## 6 Place Assessment

### 6.1 Introduction

6.1.1 A review of the Airports Commission's Place Assessment was undertaken to:

6.1.1.1 Assess how and to what extent the health and wellbeing impacts, and their equitable/inequitable distribution, have been taken into account.

6.1.1.2 Provide, where possible and appropriate, recommendations for enhancing the comprehensiveness and quality of the assessment undertaken.

### 6.2 Review findings

6.2.1 The place assessment is made up of a:

6.2.1.1 Land take assessment that considers direct land take, property loss and indirect land use impacts.

6.2.1.2 Landscape, townscape and waterscape assessment that considers landscape, townscape, visual amenity, tranquillity and dark skies.

6.2.1.3 Heritage assessment that considers designated heritage assets, namely Scheduled Monuments, Listed Buildings, Conservation Areas, Registered Parks and Gardens, and World Heritage Sites.

6.2.1.4 Waste assessment that considers how waste would be managed both during construction of each option and operationally

6.2.2 There is no specific discussion of community health and wellbeing except for the potential loss of health centres and in relation to the management of waste.

6.2.3 There are a number of public health issues that are worth highlighting in relation to the Place Assessment:

6.2.3.1 Food security is an important public health issue and hence permanent loss of good quality agricultural land should be considered from a food security, sustainability and public health perspective.

6.2.3.2 There is no discussion of how the loss of the overall amount of greenspace is a permanent adverse health and wellbeing effect, i.e. that improvement of the remaining Colne Valley Regional Park cannot be seen as offsetting the permanent loss of total amount of greenspace.<sup>13</sup> Where there is a loss of heritage and greenspace this can also adversely affect people's sense of identity and self-worth. Such a loss would also be forever i.e. it would affect future generations. Both of these needs to fully taken into account.

6.2.4 The waste assessment identifies potential additional noise, air quality impacts and traffic impacts from the construction and operation of airport waste collection and treatment facilities either on-site/near the airport or off-site e.g. the potential for a new on-site energy from waste (EfW) facility at Gatwick, the reprovision and then demolition of an existing EfW near Heathrow. It is unclear whether these potential noise impacts have been considered in the noise and air quality assessments.

### **6.3 Recommendations**

6.3.1 A fuller assessment of the public and community health impacts of the loss of agricultural land; green, open and play space; and heritage should be undertaken.

6.3.2 The waste assessment identifies potential additional noise, air quality impacts and traffic impacts from the construction and operation of airport waste collection and treatment facilities. It is currently unclear whether these potential impacts have been considered in the Noise and Air Quality Assessments.

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<sup>13</sup> Health Scotland, Greenspace Scotland, Natural Heritage Scotland. (2008). Health impact assessment of greenspace: a guide.

## 7 Local Economy Assessment

### 7.1 Introduction

7.1.1 A review of the Airports Commission's Local Economy Assessment was undertaken to:

7.1.1.1 Assess how and to what extent the health and wellbeing impacts, and their equitable/inequitable distribution, have been taken into account.

7.1.1.2 Provide, where possible and appropriate, recommendations for enhancing the comprehensiveness and quality of the assessment undertaken.

### 7.2 Review findings

7.2.1 The Airports Commission's Local Economy Assessment considered potential changes in:

7.2.1.1 Employment and Businesses

7.2.1.2 Surface Access

7.2.1.3 Housing and Social Infrastructure

7.2.1.4 Land (use)

Employment and Businesses

7.2.2 As stated in the Assessment airports tend to generate more lower paid, low skill and/or entry-level jobs. Employment has positive health benefits however low paid, low skill, insecure jobs with few opportunities for training, development and progression are less healthy than higher paid, higher skill, secure jobs with good opportunities for training, development and progression. More detailed information on the likely mix of part-time and full-time, low vs high skill and low vs high paid jobs generated by the three schemes is needed to assess the quality of the employment likely to be generated.

7.2.3 Data on the proportion of residents by industry group – i.e. transport industries - is likely to be a crude indicator of the likely number and proportion of people working at an airport. This is because jobs at an airport may also be classified as, for example, Accommodation and Food Services/Distribution, Hotels and Restaurants e.g. staff employed in shop, café and restaurants within the airport).

- 7.2.4 The Assessment makes use of data on overall deprivation by local authority and identifies the potential for new employment opportunities to have the potential to reduce deprivation. However, deprivation is a complex phenomenon and, even if some local residents experiencing deprivation obtain jobs at the airport, it may narrow inequalities in employment and, possibly, income deprivation but it may not on its own reduce overall deprivation as health and disability status, access to housing and services, and neighbourhood characteristics also make up the overall deprivation measure. A more detailed spatial mapping of overall deprivation, employment deprivation and income deprivation domains of the indices of deprivation alongside mapping the proportion of existing workers by first part of the postcode of residence (first part of postcode to provide anonymity), the income band they are in, their census industry group, their occupational type, and ethnicity, obtained from the scheme proponents, would have provided a better understanding of how many residents from deprived LSOAs are working at the airport and their income levels. This would help to judge the deprivation and equity/inequality of impacts of each scheme. A spatial mapping of barriers to housing and services would support the analysis of impacts on housing and social infrastructure.
- 7.2.5 The Assessment states in two places that people currently commuting could switch to jobs closer to home and therefore new workers may not move into the area (Page 37, 54; Local Economy Assessment). Heathrow Airport Limited's modelling suggests no influx of new workers (Page 112; Local Economy Assessment). An additional, and potentially more realistic scenario, that should be considered is that some of the new jobs are likely to be taken up by:
- 7.2.5.1 some young/currently unemployed residents in the local authorities surrounding the airport moving into their first, second or third jobs (given population growth and longer working ages);
  - 7.2.5.2 some residents moving to a job closer to home to take up a job at the airport or associated new business (though this creates recruitment pressures for the businesses that were employing these people); and

- 7.2.5.3 some new workers from outside of surrounding local authorities (who either buy/rent homes in the surrounding local authorities).
- 7.2.6 As stated in the Assessment, it is important to note the uncertainty over the increase in employment opportunities and whether they benefit young residents, unemployed residents and residents experiencing multiple deprivation in the surrounding local authorities. These residents are also likely to be most negatively affected by existing and future environmental, social and health impacts from existing and future airport activities.
- 7.2.7 A rise in business rents following airport expansion could lead to higher value adding firms displacing those less location sensitive businesses that could relocate elsewhere (Pages 54, 60-61; Local Economy Assessment). However it could also lead to a reduction in the diversity of local businesses as existing businesses are priced out because landlords want to charge higher rents. This has the potential to reduce the resilience of the local economy to shocks in the airline, airport and transport sectors. It could also lead to a loss of jobs and unemployment for those workers in businesses that either cannot find affordable space elsewhere leading to a reduction in the workforce to cover increases in rental costs or the new location is too far for them to commute and they cannot take up jobs in the new businesses coming in. This issue is partially acknowledged but its implications not drawn out on Page 76, Local Economy Assessment, where it states "Increasing value of businesses may provide higher-value jobs that local people may miss out on unless they are upskilled. Improving skills is a key aspect of regeneration and of particular relevance if there are airport jobs being replaced due to technology (e.g. baggage handling)."
- 7.2.8 Consistency would be useful when considering numbers and proportions of residents working at airports. For example "Links to Heathrow are common features of local authority plans, with Ealing highlighting that 5,760 jobs are taken by Ealing residents. 10 per cent of the workforce in Spelthorne is employed at Heathrow." (Page 61; Local Economy Assessment). Using ONS Census 2011 Neighbourhood Statistics data on the economically active population of Ealing, 5,760 of 180,615, equates to 0.03% of economically active residents work at Heathrow Airport while 10% of the Spelthorne workforce equates to 10% of 52,767, which equates to 5,277.

## Surface Access

7.2.9 It would have been useful to discuss qualitatively, and quantitatively if possible, the potential localised road impacts as these could be potential economic costs e.g. the potential for an increase in road traffic incidents, accidents and congestion on roads that are likely to get busier. The issue of road traffic incidents and accidents is not discussed in the Surface Access Assessment either.

## Housing and Social Infrastructure

7.2.10 Jobs being taken up by the three groups discussed in Paragraph 7.2.5 do not necessarily reduce housing pressures as any reduction depends on the proportion of: young/unemployed residents, who gain jobs in the new airport development or associated new businesses, who are able to buy or rent their own room/flat/house; new workers moving to buy/rent in the surrounding authorities who take up the jobs left by residents currently commuting elsewhere but who now have a job closer to home in the new airport development or associated new business; and the new workers who move in from outside the surrounding local authorities to take up a job in the new airport development or associated new businesses. Given this, there may be a reduction in labour supply constraints but not necessarily any reduction in housing/land pressures.

7.2.11 It is acknowledged in the Assessment that many local authorities are struggling to meet existing general housing and affordable need. However, the Assessment assumes that this will somehow be worked out by local authorities because the scale of increase of the schemes is a small percentage of the current housing need. More likely the additional increase will mean i) that local authorities will be further away from meeting their housing needs; ii) an increase in rent and house/flat prices which is likely to push out existing residents who are young, unemployed or on low incomes who want to continue to live in the area; iii) potential for an increase in overcrowded private and social housing, both rented and owned; and iv) make it more difficult for local authorities to ensure private sector housing developers build sufficient good quality affordable and social housing because of increased pressures to meet house building targets.

7.2.12 The potential for out-commuting to be reduced is limited given the reasons discussed in Paragraph 7.2.5 above. The Assessment should consider only the worst case scenario

that housing requirements for the three schemes will be in addition to existing housing need and is unlikely to be reduced to any significant extent.

- 7.2.13 The use of the 2012 London Olympics as an example of what can be achieved in terms of general and social housing is inappropriate as that was a wholly public sector development with complete public financing of the accommodation that was built. The Games also had a strong social and general welfare set of objectives at its heart. In contrast, the three schemes are private sector developments (with their own business objectives) where the accommodation needs of the airport will be for private sector housing developers (with their own business objectives) and public sector bodies (local authorities and housing associations) to provide. It is unlikely that the three schemes could replicate what the Olympic Delivery Authority achieved in terms of housing development.
- 7.2.14 If new workers in the three schemes and associated new businesses commute from even further away than currently, then there are likely to be ripple effects with increases in rents and house/flat prices in local authorities further away from the Assessment Area. See Paragraph 7.2.10.
- 7.2.15 There are important additional economic costs in terms of local authority staff time in the planning and siting of the new schools and health centres required. In addition, if these facilities are not in place at the right times then there is a potential for localised pressures on some schools and health centres.
- 7.2.16 There is some evidence that longer commuting has adverse health and wellbeing impacts.<sup>14 15</sup>
- 7.2.17 Housing density needs to be considered with care and is unlikely to be a quick solution to dealing with housing demand and land take. It often needs to be developed in a slow and considered way as highlighted in the Assessment (Housing density Section, Page 125; Local Economy Assessment). High-density development can mean a few high storey

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<sup>14</sup> UK Office for National Statistics. Commuting and Personal Well-being, 2014. Available at [http://www.ons.gov.uk/ons/dcp171766\\_351954.pdf](http://www.ons.gov.uk/ons/dcp171766_351954.pdf)

<sup>15</sup> Lyons, G. and Chatterjee, K. (2008) A human perspective on the daily commute: Costs, benefits and trade-offs. *Transport Reviews*, 28 (2). pp. 181-198. Available at <http://eprints.uwe.ac.uk/8251/>

buildings or smaller houses with small private gardens, little public greenspace and inadequate parking. These can have unintended negative health and wellbeing impacts in terms of poor quality high rise living and poor quality private and neighbourhood environments. The example of a Peabody Trust, a trusted developer with a long term social objective rooted in supporting local communities, emphasises the above points that it is only well-designed and managed high density developments that provide healthy neighbourhood environments.

Land

7.2.18 See Paragraph 7.2.16

### **7.3 Recommendations**

- 7.3.1 There needs to be a more detailed spatial mapping of overall, employment and income domains of the indices of deprivation alongside mapping the proportion of existing workers by first part of the postcode of residence (first part of postcode to provide anonymity), the income band they are in, their census industry group, their occupational type, and ethnicity, obtained from the scheme proponents, to provide a better understanding of how many residents from deprived LSOAs are working at the airport and their income levels. This would help to judge the equity/inequality of impact of each scheme. A spatial mapping of barriers to housing would support the analysis of impacts on housing and social infrastructure.
- 7.3.2 The potential localised road impacts need to be considered as these could be potential economic costs e.g. the potential for an increase in road traffic incidents, accidents and congestion on roads that are likely to get busier should be assessed qualitatively or quantitatively.
- 7.3.3 The issues discussed in Section 7.2 need to be explicitly discussed and taken into account in the Local Economy Assessment as well as in the Quality of Life and Community Assessments.

## **8 Local Noise Assessment**

### **8.1 Introduction**

8.1.1 A review of the Airports Commission's Quality of Life Assessment was undertaken to:

8.1.1.1 Assess how and to what extent the health and wellbeing impacts, and their equitable/inequitable distribution, have been taken into account.

8.1.1.2 Provide, where possible and appropriate, recommendations for enhancing the comprehensiveness and quality of the assessment undertaken.

### **8.2 Review findings**

8.2.1 Effects on children are not considered specifically and the distribution of impacts on other sensitive/vulnerable groups have been assessed only to the extent of considering three types of sensitive buildings: schools, hospitals and places of worship and their exposure to noise.

### **8.3 Recommendations**

8.3.1 A mapping of the Index of Multiple Deprivation (i.e. overall and health deprivation and disability domains) to population density, noise contours and flight paths should be undertaken to get a better sense of how existing deprived communities are likely to be affected by the changes in noise levels, both increases and decreases.

8.3.2 A more detailed description of the monetisation methodology including a worked example would be useful for assessing the validity of the methodology used as well as its applicability in future airport assessments.

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## 9 Air Quality Assessment

### 9.1 Introduction

9.1.1 A review of the Airports Commission's Quality of Life Assessment was undertaken to:

9.1.1.1 Assess how and to what extent the health and wellbeing impacts, and their equitable/inequitable distribution, have been taken into account.

9.1.1.2 Provide, where possible and appropriate, recommendations for enhancing the comprehensiveness and quality of the assessment undertaken.

### 9.2 Review findings

9.2.1 An assessment of local air quality impacts is crucial to understanding the likely health effects on local residents. Unfortunately the air quality assessment does not provide this at this stage.

9.2.2 The Airports Commission's Air Quality Assessment report is the first of a two-stage assessment. This first stage only assesses national air quality impacts in detail. Local impacts on air quality and associated effects will be captured as part of the future second assessment.

9.2.3 The assessment considers emissions of NO<sub>2</sub> (Nitrogen Dioxide), PM<sub>2.5</sub> and PM<sub>10</sub> (Particulate Matter 2.5 and 10 microns or less in size) associated with the proposed schemes. While a scope limited to these pollutants is considered common practice in air quality assessments and health impact assessments, it is important to note that other pollutants, namely secondary O<sub>3</sub> (Ozone) and other hazardous air pollutants arising from combustion of aircraft fuel (e.g. volatile organic compounds, VOCs) and their potential effects on health can be important. There are examples internationally where airport assessments have looked at a wider range of airport pollutant emissions, such as VOCs from combustion of aircraft fuel, and provided a quantification of the likely exposure and health effects (see Hong Kong<sup>16</sup>, Toronto<sup>17</sup> and Brisbane<sup>18</sup> Airport EIA/HIAs).

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<sup>16</sup> Mott MacDonald. (2014). Expansion of Hong Kong International Airport into a three-runway system Environmental Impact Assessment, Executive Summary. Airport Authority Hong Kong. (2014). Available at [http://www.epd.gov.hk/eia/register/report/eiareport/eia\\_2232014/html/ES\\_Rev%20C.pdf](http://www.epd.gov.hk/eia/register/report/eiareport/eia_2232014/html/ES_Rev%20C.pdf)

- 9.2.4 The second stage of the assessment is expected to consider detailed pollutant dispersion modelling and will report on an assessment of receptor impacts and risks to air quality limits and targets. The scope of this second stage is said to be detailed in Chapter 6 Further Work. This is not the case as this chapter provides no details on the methodology and approach to be used, and which health impacts (endpoints) from changes to air pollution will be quantified and monetised.
- 9.2.5 Figure 2 (path B (page 11)) indicates that the assessment of local air quality impacts that will be undertaken during the second stage of assessment will be based on a comparison of estimated future pollutants (NO<sub>2</sub> and PM) concentrations with European Union Limit Values (EULVs) and Air Quality Objectives (AQOs). This simple comparison while informative for likely compliance with existing regulatory standards provides an incomplete and potentially misleading assessment. This is because there is no safe level below which air pollutants' concentration, especially PM, ceases to have an effect on health.<sup>19</sup>
- 9.2.6 The assessment identifies two possible methodologies for monetisation for the assessment of local air quality impacts – an abatement cost approach and an impact pathway approach. The abatement cost approach, where breaches of legally binding EULVs and AQOs are considered to occur, seems to be useful in capturing the potential punitive costs due to regulatory breaches. An impact pathway approach would better quantify the likely key health impacts of changes in local air pollution, particularly in terms of the vulnerable groups and enhancing equity.

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<sup>17</sup> Golders Associates. (2013). Proposed expansion to Billy Bishop Toronto Airport Health Impact Assessment. Available at <http://www1.toronto.ca/City%20of%20Toronto/Waterfront%20Secretariat/Shared%20Content/Files/BBTCA/City%20of%20Toronto/13-1151-0215%20RPT%20Final%202013Nov26%20BBTCA%20HIA.pdf>

<sup>18</sup> BAC Australia. (?). D7, Volume D, Airspace Health Impact Assessment Available at <http://www.bne.com.au/sites/all/files/content/files/D7%20Health%20Impact%20Assess.pdf>

<sup>19</sup>WHO (2014). Review of evidence on health aspects of air pollution – REVIHAAP Project. Technical Report. [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0004/193108/REVIHAAP-Final-technical-report-final-version.pdf](http://www.euro.who.int/__data/assets/pdf_file/0004/193108/REVIHAAP-Final-technical-report-final-version.pdf)

### 9.3 Recommendations

- 9.3.1 An impact pathway assessment approach as part of the second stage assessment should be used as this approach can provide a more comprehensive quantification of health endpoints (using established exposure response functions from the Committee on the Medical Effects of Air Pollution (COMEAP), Clean Air For Europe Cost-Benefit Analysis modelling framework (CAFE-CBA) or the World Health Organization (WHO), including impacts from Ozone (O<sub>3</sub>), to take full account of potential impacts on public health from changes to air quality.<sup>20 21 22</sup>

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<sup>20</sup> Committee on the Medical effects of Air Pollution (COMEAP) Available at <https://www.gov.uk/government/groups/committee-on-the-medical-effects-of-air-pollutants-comeap#publications>

<sup>21</sup> Clean Air For Europe (CAFE-CBA) Available at <http://www.cafe-cba.org/>

<sup>22</sup> WHO Available at [http://www.who.int/topics/air\\_pollution/en/](http://www.who.int/topics/air_pollution/en/)

## 10 Water and Flood Risk Assessment

### 10.1 Introduction

10.1.1 A review of the Airports Commission's Quality of Life Assessment was undertaken to:

10.1.1.1 Assess how and to what extent the health and wellbeing impacts, and their equitable/inequitable distribution, have been taken into account.

10.1.1.2 Provide, where possible and appropriate, recommendations for enhancing the comprehensiveness and quality of the assessment undertaken.

### 10.2 Review findings

10.2.1 The Airports Commission's Water and Food Risk Assessments assesses the likely spatial changes in flood risk and the likely effectiveness of the mitigation proposed by the different schemes. As far as we can ascertain it is in line with good practice guidance on assessment of water quality, water quantity and flood risk.

10.2.2 From a health impact and health equity perspective, it does not provide an estimate of the number of people currently residing in areas of flood risk, their characteristics, and how these numbers may change in the future as a result of changes in flood risk from the different schemes (the potential for the development to displace water or alter water flows increasing flooding elsewhere). This estimate would provide a good indication of the magnitude of potential human health effects due to flooding for the different schemes. This is useful as floods have public health relevance for their effects on healthy living, physical health (hospitalisation for different causes), mental health and wellbeing (depression, insomnia, increased use of alcohol and non-prescription drugs, low self-esteem, stress) and premature mortality.<sup>23 24</sup>

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<sup>23</sup> Flood Hazard Research Centre. The health effects of floods: the Easter 1998 floods in England. No 3/99. 1999. Flood Hazard Research Centre Article Series.

<sup>24</sup> Reacher, M., McKenzie, K. et al. Health impacts of flooding in Lewes: a comparison of reported gastrointestinal and other illness and mental health in flooded and non-flooded households. *Communicable Disease and Public Health*, 7 (1) pp.1-8, 2004

10.2.3 In addition, there is existing work quantifying the potential health impacts of flooding in the UK that can be used to make a quantitative estimate of the potential physical and mental health effects on the estimated numbers of people at risk were a flood event to happen.<sup>25</sup>

10.2.4 There has also been some work on monetising the effects of flooding.<sup>26</sup>

### **10.3 Recommendations**

10.3.1 It would be good to provide an estimate of the numbers of people affected by flood risk in the present and in the future for each scheme study area. Overlaying the flood risk mapping with the indices of deprivation – overall and health and disability – by LSOAs would provide a high level understanding of the general characteristics of the people in each flood risk area.

10.3.2 It would be useful to quantify potential health impacts for the different schemes using different flood risk scenarios and monetise those impacts for a more consistent consideration of local health impacts e.g. similar to the noise assessment and the future local air quality assessment.

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<sup>25</sup> Fewtrell L. (2011). Carlisle Flooding Health Impact Assessment. Aberystwyth University.

<sup>26</sup> Floods in the WHO European Region "Health effects and their prevention". WHO. (2013).

## 11 Conclusion

- 11.1.1 This conclusion considers the ten equity-focused criteria used to review the Airports Commission's Appraisal Framework in the light of the completed community health relevant Assessments.
- 11.1.2 Overall, the Airports Commission's Assessments would have benefited from a further detailed assessment of health and health equity impacts of each potential new scheme through a separate Health Impacts Appraisal Module and subsequent Assessment that sits alongside and synthesises the findings of the suite of health-relevant assessments undertaken by the Airports Commission.
- 11.1.3 The recommendations identified in this Review Report if undertaken are likely to improve the quality of the analysis of the existing suite of Assessments undertaken by the Airports Commission.
- 11.1.4 The Appraisal Framework and the methodologies used within the completed Assessments reviewed in this report would have benefited from the advice and expertise of Department of Health and Public Health England.
- 11.1.5 Though key environmental and social determinants of health have been considered, the approach to assessing quality of life is narrow and weak and has not fully synthesised the implications of the other community health-relevant assessments. The inter-related, inter-connected nature of the health and wellbeing impacts identified in the suite of Assessments has not therefore been fully considered and therefore the Assessments do not consider the in-combination effects from, for example, changes to air pollution, noise, water and flood risk, community, place and local economy.
- 11.1.6 A key health relevant scenario that was not considered in the Appraisal Framework and Assessments was the further lowering of current thresholds for air quality and noise standards.
- 11.1.7 A key weakness of the Appraisal Framework and the Assessments was that they did not consider or take account of the existing health burdens on communities from the existing airport operations. There was also no development of a detailed community health and

wellbeing baseline based on available public health data to support the analysis of potential health and wellbeing impacts.

11.1.8 Distributional impacts and health equity/inequality issues are poorly considered in the Assessments. While part of this is related to lack of data there are existing routine statistics/datasets that could have been used to provide useful information on likely distributional and health equity impacts e.g. taking account of existing health burdens and mapping indices of deprivation. For example, the Appraisal Framework states that the Community Assessment will use the Index of Deprivation and national wellbeing datasets however these information sources have not been used to inform the Community Assessment.

11.1.9 Scientific, policy and practice evidence has informed the Assessments. However, scientific evidence on the social determinants of health has not been considered in any systematic way.

11.1.10 Information on how local stakeholders have informed the findings of the Assessments is lacking.

11.1.11 There is a strong explicit and implicit weighting of quantitative assessment findings and little detailed qualitative discussion of the full range of environmental and social determinant of health and wellbeing.

11.1.12 Uncertainties and assumptions in relation to health and wellbeing impacts are only partially considered, taken into account or made explicit.

11.1.13 Physical health, mental health and wellbeing impacts are not given an appropriate weighting across the suite of health-relevant assessments.





# Appendix A:

## Review Team Biography



## MAIN REVIEW TEAM

### **Salim Vohra**

Dr Salim Vohra has 22 years of experience in public health medicine in various settings and over 12 years of experience of undertaking health impact assessment (HIA).

He has led HIAs in a range of sectors – economic, energy, health services, housing, transport, regeneration and waste at project and policy levels - either as stand-alone HIAs or ones that were part of environmental and social assessments and strategic environmental assessments/sustainability appraisals. His recent HIAs include High Speed 2, Thames Tideway Tunnel, A6-Manchester Airport Relief Road, gas refining project in Qatar, tight gas fracking project in Ukraine and an oilfield redevelopment in Iraq.

He was lead author for three guides: a Health Scotland HIA guide of greenspace and an international guide on HIA and an occupational health risk assessment guide for the International Council on Mining and Metals.

He led a review for the English Department of Health on how HIA is carried out by government departments '*Putting Health in the Policy Picture*'.

He led the wellbeing stream for the Scottish Governments '*Environmental Determinants of Public Health*' (EDPHiS) research project and was a leading member of the health work package for the European Commission research project '*Improving the Implementation of Environmental Impact Assessment*' (IMP3).

He has worked with the World Health Organization on capacity building and incorporating HIA into environmental assessments.

His educational background is in medicine (MBChB), environmental epidemiology (MSc) and public health policy (PhD). He is an Honorary Fellow of Staffordshire University and Conjoint Lecturer at the University of South Wales for his expertise in HIA. He is also co-Chair of the Health (HIA) Section of the International Association for Impact Assessment and an Editorial Board member for Environmental Impact Assessment Review. He is an Associate of the Faculty of Public Health and member of the Transport and Health Study Group.

## **Filipe Silva**

Filipe is a specialist in public health who has recently moved into the field of health impact assessment, he has a focus on the quantification of health impacts particularly air pollution.

He has undertaken several internships/exchange programs/humanitarian assistance missions abroad in Indonesia, Guiné-Bissau and São Tomé e Príncipe.

He has a Bachelor and Masters in Medicine from the University of Oporto, Portugal and an MSc in Public Health from the London School of Hygiene and Tropical Medicine, University of London.

He is a clinically registered with the Portuguese Medical Association and is a member of the Portuguese Impact Assessment Association and the International Association for Impact Assessment.

## PEER REVIEW TEAM

### **Colleen Williams**

Colleen Williams was the Health Impact Assessment Policy Lead at the UK Department of Health from 2004-10.

She published the Draft Guidance on Health in Strategic Environmental Assessment in 2007 and drew up the first HIA guidance for cross government Impact Assessment and subsequently revised it following research on how it was being used. She also commissioned the evidence review on the recently published Transport and Health to support SEAs of Local Transport Plans.

During her career she worked in the NHS and Local Authorities in policy, strategy, commissioning and developmental roles.

### **Chimeme Egburah**

Chimeme Egburah has worked in Local Government for over seventeen years focusing on the wider determinants of health. Having worked as a jointly funded post with the NHS Public Health department she has a good understanding of health improvement interventions and key policies and practices to support the surveillance and monitoring of local public health.

As her focus is implementing policy into practice, she co-authored guidance on implementing health impact assessments within Local Authorities and was also involved in setting the framework and reviewing the health impact assessment for Luton Airport. Locally, an expert on delivering training on health impact assessment, she was instrumental in developing a local tool assessing Council decisions and its impact on inequalities in health and wellbeing.

She has a Bachelors of Science degree in Human Biology and postgraduate diploma in Health Promotion and a Masters in Public Health focusing on Urban Renewal, where she spent some time working on the Thames Gateway Development working on indicators relating to the determinants of health prior to the 2012 Olympics.





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