

**Doc. No. SSE/2/d**  
**Case Ref. 2032278**

Appeal by BAA Ltd and Stansted Airport Ltd following the refusal by Uttlesford District Council of planning application UTT/0717/06/FUL

## **Proof of Evidence on behalf of Stop Stansted Expansion**

## **Cumulative Impact Assessment: Guidance and Practice**

Riki Therivel  
Levett-Therivel  
Sustainability Consultants  
[riki@levett-therivel.fsworld.co.uk](mailto:riki@levett-therivel.fsworld.co.uk)

28A North Hinksey Lane  
Oxford OX2 0LX  
Tel/Fax: 01865 243488

10 July 2007

## CUMULATIVE IMPACT ASSESSMENT: GUIDANCE AND PRACTICE

**1. Cumulative impact assessment describes the sum total of impacts on receivers. Its value-added is in focusing on the receiver rather than the project's impacts. Cumulative impact assessment considers the *temporal* accumulation of impacts (build up of impacts over time) and/or the *spatial* accumulation of impacts (impact on one location/receiver of different types of impacts, e.g. air, water, traffic). This sets the project in its wider context.**

**2. The European Commission's five year review into the application of the EIA Directive notes that there are significant problems with cumulative impact assessment in EIA, and refers EIA practitioners to the EC guidance on cumulative impact assessment:**

*5.3.3 ... There were key information gaps on significant areas of EIA including: ... salami-slicing, cumulative impacts...*

*5.4.2 (d) The Commission urges Member States to make more widespread use of its existing guidance on screening, scoping, review and cumulative impacts. There should also be more training at national levels in the use of these quality control documents. These documents are found in the web page of DG ENV: <http://europa.eu.int/comm/environment/eia/home.htm>.*

European Commission (1999?) "Report from the Commission to the European Parliament and the Council on the Application and Effectiveness of the EIA Directive" [http://ec.europa.eu/environment/eia/pdf/report\\_en.pdf](http://ec.europa.eu/environment/eia/pdf/report_en.pdf) (cover page plus pp. 67-74 and pp. 98-99).

**3. A key reason behind the European Directive on strategic environmental assessment (SEA, environmental assessment of plans and programmes) was the difficulty of carrying out good cumulative impact assessment at the project EIA level. If a longer term, comprehensive master plan (to 2030, as noted in the Air Transport White Paper) was being developed for Stansted, this would be subject to SEA. In its absence, the cumulative impact assessment for the Stansted G1 proposal becomes particularly important.**

**4. The European Commission guidance on cumulative impact assessment defines cumulative impacts as cited earlier in the public inquiry, and covers both temporal and spatial accumulation of impacts. It clarifies that EIAs should consider historical trends and the likely future status of the environmental resource. It refers to eight methods of assessing indirect and cumulative impacts and impact interactions, none of which was used by BAA in its ES:**

p. iii *Cumulative impacts: Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. (NB The guidance does not specify what is meant by ‘past’ or ‘reasonably foreseeable’<sup>1</sup>).*

p. xii: *Data collection should be focused on determining the current and future status of the environmental resource, historical trends, existing regulatory standards and development plans and programmes. Determining the carrying capacity or resource threshold can also assist in assessing the significance of indirect and cumulative impacts as well as impact interactions.*

pp. vi – x refers to eight methods for assessing indirect and cumulative impacts and impact interactions:

- expert opinion, e.g. expert panels
- consultations and questionnaires
- checklists
- spatial analysis / GIS
- network and systems analysis
- matrices
- carrying capacity analysis
- modelling

European Commission (1999) *Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions:*

<http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf> (cover page plus Summary)

## **5. The European Commission’s definition of, and approach to, cumulative impact assessment has been reiterated in a range of more recent UK guidance and research on environmental assessment. A report by Natural England particularly notes the cumulative effects of air travel on biodiversity:**

*2.1... A recent practitioner guide prepared for the Canadian Environmental Assessment Agency (CEAA) (Hegmann et al. 1999) defined cumulative effects as: “... changes to the environment that are caused by an action in combination with other past, present and future human actions.” Also pertinent to this study is the definition in European Union guidance on CEA (Commission of the European Communities, 1993) which defines cumulative impacts as “The accumulation of*

---

<sup>1</sup> I agree with Mr. Rhodes (Inquiry Transcript, 15 June, p.87) that the impact of past actions can be described as part of the baseline; which in this case is survey data in 2006 (Inquiry Transcript, Mr. Rhodes, 15 June, p.91). I carried out a web-search for a definition of ‘reasonably foreseeable’ (which is used extensively in tort cases, mobile phone contracts etc. as well as cumulative impact assessment). This provided very little relevant information. The two most useful definitions were:

- from a UK radiation protection glossary, re. reasonably foreseeable accidents: “an incident of accident which is thought to be *credible*”  
[http://www.ionactive.co.uk/glossary/Reasonably\\_Foreseeable.html](http://www.ionactive.co.uk/glossary/Reasonably_Foreseeable.html).
- from a report on how long-term management of UK radioactive waste should take account of ‘reasonably foreseeable’ attacks on storage sites: “[An attack] that is *feasible using known or anticipated technology*, and whose *probability is sufficiently high* that the attack should be considered in selecting a radioactive-waste option”  
[http://www.corwm.org.uk/pdf/Doc%201589\\_%20IRSS%20WP5.pdf](http://www.corwm.org.uk/pdf/Doc%201589_%20IRSS%20WP5.pdf). (my highlighting).

*human induced changes in valued environmental components across space and over time; such impacts can occur in an additive or interactive manner.”*

*Table 2.3 The principles of cumulative effects analysis:*

- *Cumulative effects are caused by the aggregate of past, present, and reasonably foreseeable future actions: The effects of a proposed action on a given resource include the present and future effects added to the effects that have taken place in the past. If an environment is already degraded the effects of new plans or programmes on this environment may be more serious. Consideration of quality of the environment before the project, plan or programme is implemented is vital to predict what the quality of the environment will be after the project, plan or programme is implemented.*
- *Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who has taken the action: Individual effects from disparate activities may add up to or interact to cause additional effects not apparent when looking at the individual effects one at a time. The practicalities of this are complicated in terms of whose responsibility the assessment is...*
- *Each affected resource, ecosystem, and human community must be analysed in terms of its capacity to accommodate additional effects, based on its own time and space parameters: Analysts tend to think in terms of how the resource, ecosystem, and human community will be modified given the actions development needs. The most effective cumulative effects analysis focuses on what is needed to ensure long-term productivity or sustainability of the resource.*

James, E., P. Tomlison, V. McColl and C. Fry (2003) *Final Report – Literature Review / Scoping Study on Cumulative Effects Assessment and the Strategic Environmental Assessment Directive*, prepared by C4S (part of Transport Research Laboratory) for the Environment Agency, <http://www.environment-agency.gov.uk/aboutus/512398/1504325/1504417/831980/832006/?lang=e> (cover page plus Chapter 2).

*2.1 Cumulative effects are described as ‘changes to the environment that are caused by an action in combination with other past, present and future human actions’ (CEAA 1999)...*

*2.2... Development comes in many shapes and forms each of which is likely to have some sort of cumulative effect on England’s biodiversity. The most obvious types of development are housing and roads, however there are a number of other urban, transport and infrastructure schemes that produce and contribute to a variety of cumulative effects. The Government has recently paved the way for an increase in development around the country through a series of plans including The Sustainable Communities Plan for Housing, The Transport Ten Year Plan, and The Airports White Paper. These plans could result in more than 750,000 new dwellings, 100 new bypasses, 130 other road improvement schemes, and a number of new terminal and runway projects at England’s*

*airports. This will lead to increased consumption of water, minerals and energy and will produce increased amounts of waste. Taken together this potentially poses a significant threat to England's biodiversity, through habitat loss, fragmentation, disturbance and pollution, as well as other direct, indirect and cumulative effects.*

English Nature (2006) A Practical Toolkit for Assessing Cumulative Effects of Spatial Plans and Development Projects on Biodiversity in England, Research Report No. 673, <http://www.english-nature.org.uk/pubs/publication/PDF/673.pdf> (cover page plus Chapter 2).

## **6. The DCLG's guidance on cumulative effects uses a slightly different definition of 'cumulative', and reiterates the other guidance documents' key messages:**

*'Cumulative' is not defined in the EIA Directive... cumulative effects could refer to the combined effects of different development activities within the vicinity or those of different aspects of a single development on a particular receptor'* para. 121-122.

*123. Whichever approach is taken, the key is to focus on the receptor and consider capacity cumulatively to accommodate the changes that are occurring and proposed, rather than just calculating the contributions associated with a particular development and/or environmental aspect.*

The guidance then refers the reader to other guidance listed in its reference list; this includes the European Commission (1999) guidance on indirect and cumulative impacts.

DCLG (2006) Environmental Impact Assessment: A Guide to Good Practice, [http://www.communities.gov.uk/pub/3/EnvironmentalImpactAssessmentAguideToGoodPracticeAndProcedures\\_id1501003.pdf](http://www.communities.gov.uk/pub/3/EnvironmentalImpactAssessmentAguideToGoodPracticeAndProcedures_id1501003.pdf) (cover page plus pp. 40-41).

## **7. In practice, some cumulative impact assessments carried out as part of UK environmental assessments have been limited to a few clearly defined projects that are broadly concurrent with the project being assessed, for instance:**

- impacts of a proposed wind farm at Rhyl Flats plus a wind farm 'also proposed' at North Hoyle  
<http://www.westcoastenergy.co.uk/documents/Rhyl%20Flats%20NTS.pdf>.
- impacts of a mixed use development near Wembley plus two other residential/commercial developments for adjacent sites with submitted planning applications, plus 'proposals for Copland School and Wembley Central and the Masterplan Framework area'  
[http://www.brent.gov.uk/planning.nsf/e35824689957a84280256623005fc7af/a89ada5cabb3af0680256de2004808bc/\\$FILE/Volume%203.pdf](http://www.brent.gov.uk/planning.nsf/e35824689957a84280256623005fc7af/a89ada5cabb3af0680256de2004808bc/$FILE/Volume%203.pdf).
- Joint impacts of three separate projects near Bognor Regis, all located in the area for which Arun District Council had developed a draft development brief: 'North Bersted', 'Oldlands Farm' and 'Felpham' in 'Policy Site 6'  
[http://www.arun.gov.uk/assets/site\\_6\\_applications/bersted/env\\_chapter\\_17\\_cumulative\\_effects.pdf](http://www.arun.gov.uk/assets/site_6_applications/bersted/env_chapter_17_cumulative_effects.pdf).

**However in other cases (typically larger developments) environmental statements have also taken into account the likely impacts of more speculative projects, for instance:**

- The Crossrail assessment also considers other development projects ‘that may occur at the same time as the Crossrail project’ or that ‘are likely to be under construction at the same time as Crossrail’: Thameslink 2000, East London Line Extension, Lower Lea Valley Olympics and legacy developments, Stratford City, Thames Gateway Bridge, and Docklands Light Railway extension  
[http://billdocuments.crossrail.co.uk/files/Home/Home3/01.Environmental%20Statement/Volume\\_03/Chapter\\_12.pdf](http://billdocuments.crossrail.co.uk/files/Home/Home3/01.Environmental%20Statement/Volume_03/Chapter_12.pdf).
- The Thames Gateway Bridge assessment considers, as part of its assessment of ‘future scenarios’, a wide range of transport schemes including the South Thames Development Route (not yet approved when the assessment was being prepared), ‘proposed’ widening of the M25, the East London Transit (‘no application consent has yet been made’), the East London Line Extension (‘programme... is at present unclear’), Crossrail (Bill not yet presented when the assessment was being prepared), and the Docklands Light Rail Extension (no application for consent had been made at the time)  
[http://www.tfl.gov.uk/static/assets/corporate/projectsandschemes/networksandse rvices/thamesgateway/Environment\\_Statement.pdf](http://www.tfl.gov.uk/static/assets/corporate/projectsandschemes/networksandse rvices/thamesgateway/Environment_Statement.pdf).

**8. There are some examples of cumulative impacts being assessed for airport developments in the UK, for instance in the sustainability appraisal for the Liverpool John Lennon Airport Masterplan. The ES scoping report for Lydd Airport (Kent) also required an analysis of cumulative impacts:**

- *The Master Plan will attract businesses to the area and the region, which is likely to add to the number of car users in the area, therefore the cumulative effects include congestion and pressure on the road network.... The increase in flights and road traffic is likely to have a cumulative effect on noise levels (p. 46).*
- *The increase in flights and road traffic is likely to have a cumulative effect on noise levels (p. 47).*
- *5.41 Measures to improve public transport facilities provide major positive benefits in the short term. However, the Master Plan is likely to have cumulative negative effects in the longer term as a result of an increase in road traffic to the region and since it encourages the use of on-sustainable transport modes. Measures to continually improve public transport could go some way to mitigate this cumulative negative effect (p. 54).*

Scott Wilson (2006) *Liverpool John Lennon Airport Draft Master Plan to 2030: Sustainability Appraisal Report, Consultation Draft*, for Liverpool Airport Plc  
[http://www.liverpooljohnlennonairport.com/file\\_uploads/sustainability\\_appraisal\\_report\\_0.pdf](http://www.liverpooljohnlennonairport.com/file_uploads/sustainability_appraisal_report_0.pdf) (cover page plus pp. 35-54).

*The EIA should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. It should also consider the in-combination effects of the different predicted impacts, for*

*example the combined effects of loss of habitat, reduced air quality, increased nitrogen deposition, disturbance from noise upon the ecological integrity of the internationally designated sites.*

CEAM / Institute of Environmental Management and Assessment (2005) Scoping opinion for environmental impact assessment of proposals for London Ashford Airport, Lydd, Kent, prepared for Shepway District Council  
[http://www.kentnet.org.uk/laag/scoping\\_opinion\\_dec05.pdf](http://www.kentnet.org.uk/laag/scoping_opinion_dec05.pdf) (cover page plus pp. 27-28).

**9. The cumulative impacts of development, including transport-related development, have been assessed in the sustainability appraisal for the proposed changes to the East of England Regional Spatial Strategy. Below is an extract showing cumulative impacts identified in the appraisal:**

*Increased emissions from transport:*

- *Increased numbers of journeys, whatever the mode, will increase air emissions and lead to greater air pollution. If congestion increases, this will exacerbate the impacts by increasing journey times. Local amenity is likely to be adversely affected near to major routes and feeder roads.*
- *Increased air pollution is likely to lead to greater adverse impacts on human health (these effects are likely to affect deprived/excluded disproportionately – so called ‘environmental exclusion’), and will also have effects on biodiversity and potentially historic buildings...*

*Increased ecological footprint of the East of England:*

- *Legislation is not producing a fast enough change in resource efficiency and consumption and added/maintained growth under a ‘business as usual’ policy scenario at national level will increase the size of the region’s footprint*
- *The Proposed Changes recognise the need for resource efficiency and demand management as well as more general behavioural change. This will require the region to engage with Central Government, regulators, regional agencies and other stakeholders via the Implementation Plan to bring about the scale of change required.*
- *‘No growth’ is not a realistic option for the region. This means that a significant change in behaviour will be required along the lines set out in the policies of the Proposed Changes RSS...*

*Loss of rural and urban character (via losses of countryside and the historic environment)*

- *Site specific changes/losses can lead to a loss of character that whilst it is site based has large implications for changes to urban and rural landscapes and environments as a whole. Such changes are often incremental and can ‘erode’ the overall quality of the built and natural environment.*

ERM (2006) Sustainability appraisal of the East of England Proposed Changes RSS, prepared for the Government Office of the East of England  
<http://www.gos.gov.uk/goee/docs/193657/193668/sustainabilityappraisal.pdf> (cover page plus pp. 75-79).