'UNHEALTHY AIRPORTS'

By Professor Jangu Banatvala - from The Lancet, 21 August 2004

Global aviation growth has resulted in proposals to enlarge or build new airports. These changes must be consistent with the wellbeing of local communities, and should consider the long-term risks for aircraft emissions inducing climatic change. The UK Government's chief scientist[1] and prime minister[2] both name climate change as the world's greatest threat. Yet, the government's white paper[3] proposes major developments for London airports, with Stansted as potentially the world's largest.

The Royal Commission's Environmental Pollution Report[4] states that unchecked, air-travel will soon be the major factor driving climate change with consequences from air pollution, flooding and water scarcity and, potentially, tropical diseases in temperate climates. Short-haul passenger flights have disproportionate effects. The report emphasises restriction of further airport development as crucial.

EU members have adopted the 1999 WHO Charter recommendations[5] which state that the welfare of communities must be put first when creating transport policy. Adverse effects fall disproportionately on those who are vulnerable – i.e. children, elderly people, those with disabilities, and those who are socially excluded. WHO stresses the importance of doing environmental and health impact assessments (EIA and HIA) to ensure noise-pressure levels are acceptable for environments including dwellings, schools, and hospitals as well as air quality levels.

Adults repeatedly disturbed by noise suffer sleep-loss, fatigue, and accidents from concentration failure, especially while doing complex tasks. Studies showed up to 500 000 people near Amsterdam's Schiphol airport were affected by sleep loss.[6] Primary school children exposed to noise experience reduced cognitive performance.[7] WHO recommends background sound pressure levels should not exceed 35 dBA during teaching sessions. In London Jet Pause describes interruptions in communication due to low-flying aircraft, which disturb classroom activity every 60–90 seconds. Long-term memory and reading deficits in schoolchildren were reversed when Munich airport closed, but emerged in children near the new International airport.[8] Worryingly, stress responses, such as significantly increased systolic blood-pressure and significantly higher levels of resting adrenaline and noradrenaline were also recorded compared with children not exposed to chronic aircraft noise.[7] Even the White Paper recommends the funding of school trips away, especially when loss of outdoor amenities become severe![3] Conflicting earlier reports notwithstanding, evidence now suggests that persistent exposure to noise above an observation threshold of 70 dBA could be a risk factor for ischaemic heart disease in adults.[7]

National improvements in air quality are not maintained near large airports where aircraft pollution is augmented by road, rail-traffic, and industrial emissions. Over 150 epidemiological studies report associations between particulate concentration and ill health, especially cardio-respiratory disease.[9] Increases of nitrogen dioxide, ozone, hydrocarbon, and ultrafine and particulate matter levels (e.g. PM_{10} and $PM_{2.5}$) might account for the extrapulmonary effects of air pollution.[10] What the major culprits are and whether a threshold exists below which damage to health is unlikely are unknown.

EIAs and HIAs should consider local and global issues and measures mitigating ill effects. Sophisticated measurement of noise and air quality is essential and the 50 dBA Leq recommended by WHO covers a much wider area, and correlates better with radar maps of flight paths and public complaints, than the Department of Transport's 57 dBA Leq noise pressure levels which underestimate the number of people affected. However, the Leq metric itself is flawed in that it averages noise levels over a 16-hour day, without taking into account flight frequency, type of aircraft, peak intensity, or changes in take off and landing patterns. It will take some years before

newer larger aircraft eventually phase out noisier ones (especially for developing countries), but these reduced noise levels result in increased fuel-burn and CO2 emissions and thus diminished air quality. The model for assessing air quality at airports in the white paper (Atmospheric Dispersion Model System 3) was developed not for airports, but for industrial sources.

For EIAs and HIAs to safeguard communities affected by major airport developments, a holistic approach is needed ensuring stakeholders are involved in consultation. In the UK, this responsibility is delegated to BAA (British Airports Authority) acting as both enabler and regulator. But BAA has a monopoly in controlling southeast England airports and its major obligation is to shareholders. This conflict of interest will do little to convince communities threatened by airport expansion that commercial interests will not override environmental and health considerations. The Department of Health states that HIAs should be commissioned before the proposed developments, having little value if recommendations arrive after key decisions have already been taken[11] this exercise should therefore have been done before publishing the White Paper.

An integrated approach with input from the Departments of Transport, Health, and Education and Technology, supported by independent high-quality research, is needed to assess environmental and other medico-social effects of airport development, on-land or offshore. But who pays?

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