

DINNER/DISCUSSION SUMMARY**Transport policy – is the UK transport system
for freight nearing the limit of its capacity?**Held at The Royal Society on 6th November, 2007We are grateful to
The Department for Transport for supporting this event

- Chair:** **The Earl of Selborne KBE FRS**
Chairman, The Foundation for Science and Technology
- Speakers:** **Professor Brian Collins**
Chief Scientific Adviser, Department for Transport
- Lord Berkeley**
Rail Freight Group
- Tom Falcon**
Director, Strategy and Process Excellence, Maersk UK
- Dr Michael Stumpf**
Centre for Bioinformatics, Division of Molecular Biosciences, Imperial College

PROFESSOR COLLINS queried the existence of a transport policy and reflected on the inadequate description of freight. There was no system which was designed and operated as a whole; the many components of the journey of freight from its place of origin to its destination were each self contained and there was no body of information which linked them altogether. The definition of freight was eccentric; it excluded luggage, parcels and the contents of containers (although not the containers themselves). This meant, for example, that train timetabling did not take account of the time passengers took to load luggage and that how the contents of containers were assembled and distributed was unclear. There were different definitions of freight capacity in rail and road; capacity itself could refer to volumetric capacity (the number of lorries on the road); economic capacity (costs); environmental capacity (emissions); or social capacity (disruption to communities). More disaggregated data, clear definitions, multi-modal analysis and fuller understanding of time constraints (just-in-time or right-time) and the "white van" syndrome were essential if the question posed could be answered. The Department for Transport could not do it on its own. Government, industry, and academia needed to work together to understand the issue and evolve the necessary regulatory framework and market incentives.

LORD BERKELEY emphasized how small the transport element was in the cost in goods in shops, compared with manufacturing and raw material costs. Transport costs were essentially market driven and the industry was highly competitive and creative. He demonstrated the pattern of rail freight today, with an infrastructure that barely met demand in some areas, and contrasted it with the capacity which would be necessary in 2030, if forecast demands were to be met. Demand for both passenger and freight capacity was set to double, with increases in bulk loads of coal, construction material and containers. Meeting this demand meant substantial investment in track, terminals, and equipment - trains and signalling - as well as using longer trains and short sea passages. Forecasts could also

be affected by a downturn in the economy, or increasing environmental pressures, but it would be rash to assume demand will not materialize; we needed to start planning now for investment, looking jointly at passenger and freight demand.

MR. FALCON looked at the UK freight problem in the global context. The UK was, and would remain, an import economy and the relationship of ports to consumers was crucial. Container traffic was growing rapidly - he estimated by 135% by 2030, covering a wide variety of consumer goods. He described the complex international supply chain of containers (trucking-freight station-trucking- port-ship discharge) followed by the internal UK chain (15/20% of logistic costs), but the overall costs were not noticed by consumers. Their interest was in availability. The supply chain requirements in the UK were, reliability, sensitivity to supply (shelves empty immediately if shortage feared), efficiency and cost; the constraints were inadequate infrastructure in ports and rail, insufficient hardware (trucks, trains) and trained staff. He was particularly concerned about terminal capacity - terminals did not work efficiently over 85% capacity and the growth assumption was below reality. 2015 was a crunch date; demand was only just met now; it would not be met without investment starting now - it took 15 years to build a container terminal; 9 years for a rail terminal and 8 for a motorway. Planning delays should not stand in the way of national infrastructure needs.

PROFESSOR STUMPF drew analogies between biological structures and networks and those under discussion for transport. There were common problems in analysing the properties of networks and incorporating statistical material. Equally important in both was the interaction between structure and dynamics. Roads and rail could be compared with biochemical pathways and ports with cell or membrane receptors. Although there were multiple differences, comparisons of networks could aid understanding of causes of problems, mechanisms of operation, and con-

straints. It was essential to remember that biological systems were not optimal - they were those that worked best in comparison with others, not the best possible. Also they were robust, largely unaffected by random removal of nodes, although they could be catastrophically affected by targeted node removal. The same qualities could affect transport systems. Collection of data was crucial, but so was the design of the model or models utilizing it. It was unwise to assume that any single model would provide an answer; an ensemble of models should be used, which then allow for a greater range of detail in the data collection

Principal themes in the following discussion were the reliability of the forecasting models and the interaction of transport and environmental demands. Several speakers commented on the inaccuracy of past forecasting (particularly on demographics) and were concerned that too close attention to assumed consumer demand, leading to increased global traffic, would result in wasted investment. But the market-led nature of transport, its sensitivity to competitive costs and the small element they formed in total goods prices, argued that capacity would continue to be needed. The risk of not providing transport capacity was that the availability of certain goods could be affected, leading to immediate de-stocking. It was possibly true that the Government had made provision for emergency supplies of essential goods, but, because of the absence of data about their contents, it could not safeguard against the disruption of container traffic. We do not know which goods are so important that a breakdown in supply could destabilize the economy. Of course, forecasts might be misleading, and there were various ways in which the translation of capacity demand into infrastructure investment could be mediated, but to work on the assumption that the demand would not materialize, would be too dangerous for a government to risk; consider the effect of the fuel protests, and the humiliating reversal of government policy. It is true that, in difficult situations, people will find a way round a problem, but such ad hoc solutions tend to be both expensive and environmentally damaging.

The speakers had emphasized the need for more data so that they could understand, and provide against, the problems which the forecasts foretold; but it was not clear what they would do with the data when they had it.. There was a danger that the government, with the support of major transport users, would decide to use the data to plan and operate a centralized economy; and seek to avoid risks by overriding or spurning market solutions. The proper use of the data would be to provide a level playing field; to enable the government to know when it was vital to intervene; and how to encourage investment by the private sector, as well as making investments itself. The national infrastructure was not just a matter for government - private investment and entrepreneurship was crucial. Regulation would, no doubt, be necessary, but the economic consequences - the cost of working capital to meet market or other failure - needed to be understood.

All agreed that environmental pressures were growing and would affect transport operations. The government's proposals for speeding up planning procedure for major national infrastructure projects were welcomed, but there was some scepticism about their practical effect where land use was at stake, as for, example, in expanding ports, or building motorways. However, much of the discussion was concerned with differential impact of carbon dioxide emissions from various forms of transport. The bigger the container vessel, and lorry, the smaller the emission out put per km/tonne; but the heavier the demand on infra-

structure. Rail freight transport was more environmentally beneficial than road. It was doubtful if there was a clear case that the distance from the source of goods to the consumer was a significant factor in controlling emissions. The heating and energy required in manufacture of goods, or extraction of minerals, or growth of natural products was much more important. - the carbon footprint of New Zealand lamb shipped to the UK might well be less than lambs reared in the UK. Establishing the carbon footprint of goods, (birth to death), was crucial data if the level playing field, which speakers endorsed, was to be established. Only if that were known could a carbon tax (or carbon price for trading) be put in place which would treat participants equally.

The discussion ranged widely over issues such as reducing transport demand, through the greater use of coastal shipping; the lax controls over continental (including Irish) drivers; the anomaly between tax on diesel for trucks and cars; the unfortunate effect of large scale closures of the rail network for maintenance (were we being too hide-bound by Health and Safety considerations?); and the effect of congestion charges. But was the system nearing the limit of its capacity, and, if so, what should be done? A number of speakers thought that it was at the limit, although there were others who thought that there was still room for meeting capacity by increased efficiency and better pricing and regulation - although in the absence of data, it was impossible to be sure. But there was strong support for the view that demand for capacity would increase sharply and that although it could be mitigated and affected by the economy and environment, failure to provide it, so that crucial goods could flow through the system, could have catastrophic results. There was no one answer; more data; better understanding of the market; more international cooperation; greater awareness amongst consumers and collaboration between government, academia and the industry, were all needed.

Sir Geoffrey Chipperfield KCB

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