

Topic Sheet No. 6

TRAMS DON'T POLLUTE

ANY MODERN-DAY discussion on the environment invariably couples it with pollution. The two are inextricably linked.

- > The subject of pollution is as global as are its effects, and the convening of the 1994 Earth Summit in Rio de Janeiro signifies the growing level of concern.
- > Environmental problems will need decades of sustained and widespread application before they are contained. Tramways can have a significant and long-term local role in that process. Interest in tramways has revived as environmental concern has grown.
- > Trams are increasingly a solution rather than a problem.
- > Concern for the environment centres on two main areas, both of which embrace pollution:
 - > Immediate local concerns affecting the quality of life, especially in urban areas:
 - > The well-being of the planet, and the extent to which it has suffered at the hands of mankind.

POLLUTION

"Transport is generating urgent problems of pollution, congestion and exasperation".
(Clare Short MP, June 1995)

- > In simple terms, pollution describes the presence, in a clear element (such as water and air), of foreign and noxious substances, which would not otherwise be significantly present in that element.
- > Debate continues about the effects upon human, animal and plant life, and implications for global atmospheric degradation. There are optimists and pessimists, but most agree that deterioration must be checked and reversed if permanent damage is to be halted.
- > In the civilised world, the need for mobility has created traffic on a large scale, over-stretching the transport infrastructure. This trend will, if unchecked, accelerate in the coming decades.
- > The immediate effects are noise, congestion, vibration, dirt, poor air quality and accidents, all bad news.
- > Responsible authorities are urgently looking at ways of improving the situation, including restricting the use of motor vehicles, and catering for the displaced travel demand in alternative ways. However, solutions must not create further problems

THE ROLE OF TRAMS

- > In this scenario, what is the role of the tram? Is it part of the problem, or part of the solution? Is its impact significant or minimal? Does it attract business, commerce and people? Does it create a clean 'feel-good' factor?
- > With tramway operation, there is no compromise of air quality in the street because no toxic or polluting gases are emitted. This helps in hot weather, when city-centre atmospheric pollution is most noticeable.
- > With their ability to move between 2000 and 18 000 people per hour, tramways are widely regarded as low-pollution, environmentally-friendly mass movement.
- > Worldwide experience has shown that tramways remove thousands of car journeys per day from roads, reducing the input of pollutants (and making more effective use of limited road space).



A pollution-free Strasbourg, thanks to trams. The stylish British-built trams have been a big hit with local people.

Michael Taplin

- > Metrolink is taking two million car journeys per year off the streets of Manchester. Hong Kong's Tuen Mun light rail system - the same mileage as Manchester - carries ten times the passenger load as Metrolink, with no greater pollution.
- > When travel demand is suppressed, introducing trams taps some of it. Some of it will however take the form of more road vehicles, reducing the beneficial impact of tramways by occupying the road space recently freed... at the same time increasing pollution.
- > Generation of electricity - at a central but usually remote place - does cause pollution, but this is often well away from cities. Furthermore, power stations are always operational, regardless of the presence of a traction current requirement, and the addition of a tramway load will normally have only a marginal effect.

- > Adverse and distant emissions are lower for tramway passengers, compared with close-at-hand car and bus users. Measured in grammes per passenger-km, they are..

	Hydro-carbons	Nitrous oxide	Carbon monoxide
Cars	0.61	1.16	5.57
Buses	0.06	0.39	0.29
Diesel rail	0.26	2.07	0.62
Tramways	0.001	0.49	0.03

Source: Steer Davies Gleave

- > **Hydrocarbons** are several times higher for diesel than for petrol engines. The result of incomplete combustion, they cause eye and throat irritation.
- > **Nitrous Oxide**, combined with moisture, produces acid rain, and causes breathing problems.
- > **Carbon Monoxide** reduces the oxygen carrying ability of the blood; 85% of CO emissions in the UK come from transport.
- > All these pollutants are believed to have links with serious diseases.
- > Carbon Dioxide contributes to the greenhouse effect, connected with global warming.
- > Pollutants are a serious and long term cause of damage to buildings and structures, especially when combined with rain, as well as having adverse effects on plants and wildlife.

SOLUTIONS

- > **Emissions** While the internal combustion engine is better designed and more energy efficient, increases in vehicle totals cancel out much of the benefit.
- > **Options** Restricting the use of private vehicles is unpopular; providing attractive alternatives, persuading car users to defect to public transport, is an effective but elusive and expensive option. Tramways are often the solution.

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