University of London
Centre for Transport Studies

Working Paper

Is Environmentally Sustainable Transportation a Realistic Proposition in Today's World ?

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September 1994

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ABSTRACT

Suggested proposals for environmentally sustainable transport seem to be in direct conflict with the aspirations and day-to-day habits of the general populace, and the business community, despite increased worldwide environmental awareness. With Governments increasingly unsure of how to balance their own short term electoral aspirations with long term national benefits, and the private sector perceiving sustainability to be in direct conflict with economic progress, the 'green-gold alliance' seems an ever more elusive concept. The situation is somewhat more acute in the rapidly industrialising nations who could perceive the concept of environmentally sustainable transport as being incompatible with their newly found prosperity

It concludes by recommending mass education as perhaps the primary way of making people and businesses alike amenable to sustainable transportation and the lifestyle changes it would involve. The final conclusion to be drawn though is that for many democratic societies worldwide, there seems little reason to be optimistic about sustainability evolving from a fashionable word into reality. The literature suggests that nearly all political parties recognise the problems, but there will almost definitely need to be short-term sacrifice before optimal growth patterns can be achieved, and the public are unlikely - at present - to understand and be cooperate.

1 INTRODUCTION

This paper debates whether or not Governments and citizens worldwide will ever commit themselves to environmentally sustainable transport en-masse. It draws upon recent Governmental reports, academic papers and the experiences of the author while working for the Centre for Transport Studies [redacted] Section 2 debates the politically contentious nature of sustainable transportation and Section 3 outlines the contribution that the private sector can, or is likely to, make in the developed world. The rest of the paper pertains to the developing world: section 4 debates the likelihood of sustainable transportation taking root; section 5 examines the role of the private sector in these countries. [redacted]

2 SUSTAINABLE TRANSPORTATION DEVELOPMENT: AN EMOTIVE TOPIC.

Sustainability has many definitions: most require that the 'quality of life should not decline over the long term future. Many can also be interpreted in terms of maintaining an economy's capital stock.' (Pezzy, 1992). Coomer (1979) says: 'The sustainable society is one that lives within the self-perpetuating limits of its environment. That society...is not a no growth society...It is rather a society that recognises the limits of growth.....(and) looks for alternative methods of growing.' Barbier (1987) gave a different perspective by saying: 'In general terms the primary objective (of sustainable development) is to reduce the absolute poverty of the world's poor by providing lasting and secure livelihoods that minimise resource depletion, environmental degradation, cultural disruption and social instability.' Perhaps the most commonly used definition was that used by the Brundtland Report (1987), which was: ' development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.'

Whatever the definition, however, the perceived conflict of interests between the economy and the environment seems likely to be the most serious obstacle to sustainable development: as long as individual citizens and the institutions that serve them consistently rank short-term material gain before long-term environmental matters then the 'rhetoric of sustainable development will not be politically realistic' (Begg, 1991). Kissenger (1968) wrote:

> 'The reputation, indeed the political survival of many leaders depends upon their ability to realise their goals, however these may have been arrived at. Whether these goals are desirable is relatively less crucial. Leaders reveal an almost compulsive desire to avoid even a temporary setback. Long range interests are bound to be neglected because the future has no administrative constituency.'

The environmental problem, and subsequent call for action, seems to have left democratic political parties all over the world in some confusion: obviously they cannot be seen to sanction the desecration of our environment, yet to openly endorse the perceived sacrificial medicine would render them virtually unelectable. Some reports (e.g Dept of the Environment, 1994) are keen to point out that economic growth and environmental protection are by no means mutually exclusive, yet it seems an appeasing utterance to two vehemently opposed factions: no real timetabled agenda is actually laid out, and the reports seem to skirt the real issue: that our current lifestyles are unsustainable and need to be changed (see Renner, 1988).

The debate over sustainable transportation, in many ways, encapsulates many of the aforementioned dilemmas and contradictions. Transport uses about 'one-third of all environmental resources' (Banister and Button, 1993a) and its effects can be seen at all three levels of the debate: global, national and local; yet current transportation infrastructure means that people now have a greater choice of social activities, residential and work locations. Sustainable transport would attempt to safeguard these benefits whilst curtailing the harmful effects. Seregeldin (1993) put forward the objectives of a sustainable transport strategy:

- To restrict emissions from fossil fuels.
- To restrict consumption of land and other resources.
- To increase the efficiency of energy use.
- To increase the social and amenity values of urban areas.

These broadly correspond to curtailing the car oriented lifestyles of many people: cars are the fastest growing major contributor to global warming and vehicle traffic is the major cause of air pollution (Sustrans, 1994). Newman and Kenworthy (1991) state:

> '.....if a city is to move towards less transport energy use this will almost certainly imply less use of the private car and more use of public transport, bicycling and walking; it will more than likely also mean greater accessibility by the transport disadvantaged, less emissions and road accidents and probably a more 'human' city especially in the central city.' p265.

Unprecedented levels of car ownership and usage, however, hardly reflect a willingness on the part of the individual to help achieve this vision. It must also be noted that whilst a car based future could in theory be sustainable - perhaps in terms of small electric vehicles - it is not especially desirable.

The likelihood of any political party categorically opposing the private car, and any restraining measures being implemented successfully, are highly dependent upon the willingness of individuals to renounce their car oriented lifestyles. Research into this has not been very encouraging: a study carried out at Oxford University (Cullinane, 1991) interviewed a sample of 2428 households in the UK and found that for 49% of the households a car was essential to their lifestyle. Furthermore, despite the bulk of the sample recognising the damage that the car was doing to the environment, 58% of those interviewed said they would not change their car usage pattern even in the event of vehicle emissions causing serious environmental damage. Whilst the remaining 42% could in theory begin a sustainable process, it is probable that some will simply not do as they say, and even the ones who will modify their car usage, may revert back to their old usage patterns, when they observe the 'selfish' sections of the population benefiting from less congested roads.

People's unwillingness to modify their travel behaviour is attributable to several factors which include:

- The artificial cheapness of the car compared to other modes (Chartered Institute of Transport (1992) and Von Wiezsaeker (1991).
- Car oriented urban planning.
- The lack of a quality public transport alternative in many countries.
- The convenience element associated with car travel.
- The positive image bestowed upon cars by advertising and the other media (Stokes & Hallet, 1992).
- Human inertia and lack of information on the potential consequences of continued car usage patterns.

All of these - with the exception of human inertia - are a result of deliberate policies and are therefore theoretically reversible. Several commentators have outlined suitable strategies for environmentally sustainable transportation (including Zuckermann (1991), Seregaldin (1993), Energy 2000 (1987) and Pearce et al (1989)). They all broadly recommend: internalising the external costs associated with road transport; investing in high quality, cheap reliable public transport; better education; and revising urban planning methods which are directly responsible for generating extra traffic. Many of these changes will doubtless be extremely unpopular as they threaten many peoples' livelihoods and present way of life. Governments, though, remain fearful of the free rider problem; unless all nations cooperate, the internalising of external costs could - depending upon taxes and subsidies - render a country's industries uncompetitive in the world marketplace.

In the UK, the Government is ostensibly committed to sustainable development (Dept of the Environment, 1994), yet has increased road building programmes (Department of Transport, 1989), continues to subsidise the motorist through low fuel prices and 'tax-breaks' for company cars, and seems loathe to spend public money on new transportation schemes, as the recent procrastination over Crossrail illustrates. Road Pricing is finally on the agenda, yet whether any theory will be put into practice with 30% of the electorate being vehemently against it (Chartered Institute of Transport, 1992) is another matter. This would appear to be a classic case of a Government which sees supporting sustainable transport as its duty, yet finds many of the measures in direct conflict with its competitive policies and support base. How can it attack the private car when the car is now firmly esconsed in British culture and the car industry provides jobs for many British workers? Finlay (1985) touches upon this problem whilst debating the nature of modern democracy:

> '...'What is good for the country is good for General Motors and vice versa.' This classic remark still promotes laughter and indignation...but is it untrue? One may plausibly argue that given the economic system under which we live, the national interest is advanced by the growing power and profitability of the major corporations. Were the General Motors organisation to collapse tomorrow, the immediate consequences in unemployment, declining consumer levels and much else would be deeply felt throughout the nation. It is also arguable, in a contrary direction, that such short-term negative consequences are the necessary unavoidable prelude to a radical restructuring of the economy - also in the national interest....No programme of public action is immune from such difficulties. Consider the current favourite, the anti-pollution programme, surely, one would think, in the national interest as a matter of simple common sense. Who benefits from smog?...No rhetorical question, that, for, if no one benefited then the dangerous situation in which all developed countries now find themselves, regardless of political or economic system, would in fact not exist. The automobile industry protests that it cannot afford the palliative measures proposed in new legislation. The labour unions lobby against the eco-freaks in favour of continued development of supersonic aircraft, because hundreds of thousands of jobs are at stake....In all western democracies today there is an unwillingness to jeopardise the existing balance among classes or sectional interests (p76-78).

In fact, far from discouraging car usage, many of the British government's policies over the last twenty years have exacerbated the problem by encouraging longer journeys and the movement of activities outside city centres (Banister, 1993b).

In the USA, Deakin (1993) says that current debates over policies affecting transportation and the environment send mixed signals regarding future directions; the Dutch transport policy plan sets out the future agenda in the Netherlands, yet Rietveld (1993) says it is possible that the wave of environmental concern may soon come to an end and many of the intentions expressed in the plan may not therefore be realised. Olszewski and Turner (1993) observed that the relatively successful

integrated transport planning implemented by the Singaporean government may not be possible in countries which are more democratic.

3 THE PRIVATE SECTOR AND SUSTAINABLE DEVELOPMENT.

With the private sector being courted to invest in transport projects, sustainable transportation seems ever more elusive: governments, even those committed strongly to free market principles, at least theoretically have a social obligation to their people; this is not the case for private investors whose sole motive is usually profit. There has been limited investment by the private sector in large scale mass-transit projects, but all of these cases are isolated ones, contained an element of monopoly (Ridley, 1990) and it is extremely unlikely that the decisive factor in them becoming involved pertained to the environment.

On a small scale the majority of forays by private investors into the transport market have been anything but sustainable: bus deregulation in the UK has lead to a greater number of uncoordinated bus-miles (i.e greater energy usage) for a fall in patronage. Stokes et al (1993) say the increase in the number of operators in already congested city centres has brought its own problems, and the understandable main concern of many operators is remaining competitive; this means cutting costs and energy efficient vehicles are - in the short term - more expensive than their more pollutive counterparts.

Indeed it would be unfair to expect the private sector to provide a sustainable alternative to current mobility patterns: it is for the state to identify and address market failure. Where the private sector may be able to contribute is by demonstrating, to both people and Governments, through isolated small scale isolated projects, the principles behind sustainable transport, and showing it can be attractive to the consumer; whether or not this can then develop into a national sustainable strategy is of course another issue. Initially there is little reason to see why businesses would wish to cooperate: sustainable development is often presented in an economically negative light. Commentators (e.g Energy 2000 (1987) and Goodwin (1993)), however, are now increasingly of the opinion that it would be economically disadvantageous to persist with current trends: in short they see continued traffic growth leading to greater economic inefficiency. Energy 2000 (1987) in their report entitled 'A Global Strategy for Sustainable Development' state:

> '....Except for a few western industrialised countries, studies of the social and economic costs that these (associated with excessive car usage) effects impose on the economies of communities and nations are non-existent or non-available. The few studies which are

available, however, demonstrate that the effects are enormous and in most areas of the world they are growing rapidly.' (30)

In short if the costs of promoting sustainable transport seem prohibitively expensive now, if things are allowed to deteriorate, unattenuated, for several more years, then the true costs of environmental deterioration may become apparent; and it is extremely likely that they will be of a much higher order than the preventative ones. It seems to be in no-one's interest - not least of all businesses and Governments - to allow current unsustainable methods to continue to dominate. Goodwin (1993) emphasises the importance of the 'green-gold alliance' and prophesies that it will be possible to find methods of implementing environmentally friendly transport policies which are politically popular. He also suggests environmental protection is an essential component of efficient economic development. Actually persuading investors that this is the case is of course another matter: sustainable development needs to be a proven success before Governments and businesses subscribe to its principles en-mass. There have been isolated pilot projects, however, such as 'The Development of Pu Dong', Richard Rogers Partnership (1992) which attempted to develop an area of Shanghai in a sustainable manner; also many pedestrianised urban areas are commercially successful (see Roberts, 1989). Projects such as this are immensely marketable and the in-vogue element of sustainable development may be the thing which attracts private investors.

4 ENVIRONMENTALLY SUSTAINABLE URBAN TRANSPORT IN THE DEVELOPING WORLD.

Currently the bulk of the problems associated with excessive automobile use affects the industrialised countries; Africa, Asia and Latin America contribute relatively little (Faiz et al, 1990). There is little cause for complacency though: this statement refers to the developing world as a whole; if one examines the primary cities in many developing countries, the congestion, pollution and accident rates are often far higher than in the developed nations. Energy 2000 (1987) point out that the air pollution levels in Sao Paulo, Rio de Janiero, Lagos, Delhi, Bangkok, Seoul and Mexico City - which has the worst pollution in the world (Serageldin, 1993) - far exceed the most extreme cases of pollution in the industrialised countries. They conclude that:

'Looking to the year 2000 and beyond, vehicle markets will grow much more rapidly in developing countries.....unless strong action is taken air pollution could become a major factor limiting their industrial development.' (45).

Allport and Lee (1985) reiterate that in the Philippines congestion is seen as a drain on foreign exchange because it raises fuel consumption, and the 1974 Singapore Road Transport Action stated:

> Singapore cannot afford.....the prolonged and frequent snarling of traffic which is surely and steadily choking up our roads and our economic life. (Singapore Road Transport Action Committee, 1974, p3)

If then, in the industrialised nations, the onus is on curtailing the lifestyles which we have cultivated for ourselves, in developing countries it could be seen as preventing the bulk of the population from acquiring lifestyles which many have yet to achieve and vehemently want. The other factors which make sustainable transportation an almost impossible goal, within the developing world, will be discussed in turn:

First many governments in the Third World do not accord environmental concerns the priority which they deserve. One reason for this, especially in the poorer countries, relates to the more pressing nature of other issues. The urban areas in many countries are expanding at an alarming rates and some commentators (e.g Bier et al (1976), ODA (1992)) estimate that many Third World cities will have populations of over 20 million by the year 2000. In an environment such as this governments are understandably more concerned with issues such as unemployment, sanitation and housing, than the environment. Another more insidious reason could be the fact that many of the ruling elite do not wish to see their privileged mobility curtailed: in many instances they may look at the industrialised countries where car usage is far greater, and suggest that car users there set an example. It is thus the urban poor who experience much of the negative products of traffic congestion, without experiencing any of the benefits increased personal mobility can bring.

The second reason is the problem of poverty itself. If poorer people do suffer the most from the by-products of congestion, their lack of influence and education also mean they are in the worst position to do anything about it. Hardoy and Satterthwaite (1989) comment thus:-

> 'In the West virtually all government actions on the environment have only taken place after long and well organised citizen campaigns. Citizens organisations had not only to organise such pressures, but in most instances to document the problem in the first place. Virtually all government actions on the environment have been "citizen-led". The critical question is, are Third World Governments likely to take action on environmental problems (especially those which impact the most on poorer citizens) without democratic pressures pushing them in this direction.' (352).

There are thus relatively few environmental groups in the developing world to promote sustainable development, and the few that do exist are usually poorly funded are therefore capable of exerting very little influence.

The third reason pertains to a country's economic state. Here the discussion splits into two: countries with high levels of foreign debt and low growth such as many of the African nations; and countries with rapidly growing economies such as China and Korea. For the debt ridden nations the implementation of sustainable transportation would be difficult because of limited national funds available - often due to debt interest repayments and structural adjustment policies - to initiate large public sector transport programs: in the Philippines between 1986 and 1992, 42.6% of the national budget was spent on servicing the foreign debt (Third World First, 1993); and in Uganda Government spending has been cut to the bone in an attempt to pay its unpayable debt of US $2.66 Bn (Oxfam, 1993). Paradoxically both the World Bank (1989) and the British Overseas Development Agency (1992) failed to highlight the clash between levels of debt repayment and sustainable development in their publications on sustainable development. The difference between the rhetoric and the reality thus manifests itself again. For the countries with rapidly expanding economies sustainable transportation comes into direct conflict with the swing away from agriculture to manufacturing, which has led to a change in aspirations and attitudes of many people (Button *et al*, 1992). Hill (1993) suggests for many people in the developing world cars now embody liberty and Zuckermann (1991) suggests that the world appears to have been divided into those who have been able to acquire automobiles and those who look with envy upon them and dream of nothing better than to follow their example. He concludes:

> 'It is as if the peoples of the world stand mesmerised before the private automobile.....perhaps because in our century the automobile is seen as a symbol of power, a way to become strong, rich and fast moving, like people in the better off-nations (p252).

The newly found prosperity of some emerging nations, also seems to have been founded upon the bedrock of the car: car manufacturing or assembly brings employment, reduces the import bill and stimulates the local components industry (Spencer & Madhavan, 1989); in Malaysia the complete transfer of technology was completed several years ago and now Malaysia has a 'prestigiously' (Bloomfield, 1978) modern car industry of 'fully-fledged' assembly line status. Having just attained a certain level of trade these companies are also unlikely to want to explore new expensive technologies such as alternative fuels and increased vehicle efficiency; after all them are profiting quite handsomely under the existing system so why change things? Continued exploitation of the low cost production areas which are found in developing nations has increased the number of goods which are moved by road (Banister and Button, 1993b) and Khan & Willumsen (1985) say that the restriction of car ownership could in fact be detrimental to some countries economic survival. An article on the recently announced Chilean road building programme (Pilling, 1994) reiterated the importance of road transportation to Chile's future economic growth; no mention was made of the possible negative

environmental effects. International Cooperation for Development (1993) report that in Peru the environment is not a priority for the present Government who seem to be wedded to the traditional notion that environmental protection is an obstacle to economic growth and development.

Lastly there is the fact that, generally speaking, developing countries often lack effective institutional frameworks for transport planing (Yanaguaya, 1993 and Banjo, 1988); the decision to actually invest in infrastructure may not be made on the basis of providing better facilities to the public. Instead politicians often seek to gain political status by building prestigious projects (Roschlau, 1989) which are of a totally inappropriate technological level. Development tends to be piecemeal without the overall coordination necessary for a national sustainable transport strategy. Even if traffic restraining measures were introduced, the enforcement of traffic law is often arbitrary. The prevalence of corruption amongst enforcers in many nations may mean that motorists - often the more privileged elite - can frequently buy indemnity from punishment.

5 A ROLE FOR THE PRIVATE SECTOR IN DEVELOPING COUNTRIES

In the Third World private sector involvement is often the result of a government's lack of resources. This is especially true within the field of road based public transport: the relatively low capital outlay needed to buy buses/paratransit vehicles and the poor licensing enforcement levels mean that in many cities privately operated modes constitute the bulk of the public transport fleet. Roschlau (1989) debates the role of the public and private sectors in providing public transport in South East Asia and he cites a plethora of documents who all agree that the private sector provides a better level of service than the public sector, with a higher degree of flexibility and no operating subsidy requirements. If therefore one is to conclude that economically speaking, the private sector constitutes the better option - and not all agree with this statement (e.g Maunder, 1990), environmentally speaking the picture is perhaps more ambiguous. The lack of regulation in the market place can lead to illegal pirate operators whose vehicles are often old, and so less safe and more environmentally harmful. Proponents of state involvement say that the paratransit modes, usually run by private operators, use road space less efficiently and thus create greater levels of air pollution. In fact the high load factor of the intermediate modes can often mean that they use the road space more efficiently than the larger public buses and with regard to the air pollution problem, both types of vehicles usually use the same inferior grade of fuel. The greater the number of vehicles, however, the greater the pollution.

It may be more advantageous to assess which modes, and modes of operation, are more environmentally sustainable, then examine whether or not the private sector would be interested in providing such systems. Flexible route modes - buses, cars and minibuses - usually lead to greater

levels of pollution when they are allowed to predominate. More efficient in terms of energy and pollutive emissions are fixed route modes such as trolley buses, light rail and heavy rail, although the electricity requirements for such systems tend to exceed that produced from non-polluting sources so some fossil fuel generators would be needed - at least the pollution could be controlled at source. The coverage of these modes is of course less comprehensive than the flexible modes; they tend therefore to serve only the main corridors of demand and some intermediate mode would thus be necessary. This role could be filled by privately owned non-motorised modes such as cycle rickshaws or bicycles - the merits of which are discussed in World Bank (1989); although sadly there is a tendency to view these modes as retrogressive and obsolete in the modern age. It would be naive, however, to imagine they could plug the gap in the market; some form of motorised transport would undoubtedly need to be present, but if there were a cheap, high quality, fixed route system available, with an operating subsidy to enable fares to be comparatively low, then this would almost certainly lead to a reduction in demand for cars, buses and minibuses.

If the natural monopoly status of these more 'environmentally sustainable systems' prohibits provision by the smaller investor, their usually substandard financial performance tends to dissuade larger concerns from becoming involved in them. Fouracre et al (1990) examined the performance of 21 rail based mass-transit systems in developing cities and concluded that these systems can not be financially viable; yet they can often be economically viable - clearly this seems a prescription for state, not private sector, support. Non-rail based fixed route systems such as trolleybuses (see Scott-Hellwell, 1983, for an description of the trolleys used in Recife, Brazil) constitute a better option to investors: the system requires far less infrastructure than the rail based modes before it can be operational, and the lower operating costs for things such as maintenance mean that it is possible for these systems to run without an operating subsidy. Conversely, the carrying capacity of trolleys is much lower than other forms of mass transit, so these would dent the patronage of less environmentally friendly modes less than higher capacity systems. Other, more pollutive high capacity forms of mass transit based upon diesel buses - segregated busways, bus convoys - may be also attractive to private operator; their polluting engines would be offset by their high carrying capacities, and they can be run profitably.

Private sector involvement in sustainable transportation seems as unlikely in a developing country, as in its developed counterparts. The scale of projects which could really reduce car usage is too large for the small investor; in fact the financial performance of these systems is so poor that it would dissuade all sizes of investor. The only systems which the private sector would have an interest are pollutive or unable to offer a real alternative to the cars, taxis and paratransit vehicles which are currently choking many large Third World cities. The other thing to bear in mind is that many

businesses would view environmentally sustainable development with hostility and would be unlikely to be in favour of car usage reducing schemes. In view of these comments and those in the previous section, sustainable transportation in the developing world seem - on the face of it - an unsaleable commodity.

6 THE CASE OF MALAYSIA

In the light of the previous sections Malaysia would seem the most unlikely country for environmentally sustainable transportation to take root. The country is emerging as a major economic force in the world (Taber, 1992) and this has manifested itself in a rapid increase in car ownership levels (see Malaysia (1986), Azhar Ahmat (1992) and Ibrahim Wahab (1991)). Sadullah (1993) reports that owning cars has become an obsession amongst the population, especially the middle and upper classes. The Government has been instrumental in, and supportive of, this trend in terms of its policy formulations. Both Chau (1983) and Sadullah (1993) document the inefficient and underfunded nature of public transport in the country, and after decades of Government ownership of the country's major transit systems - paradoxical given the capitalist nature of the society itself - the majority of future funding for mass transit systems will almost certainly come from the private sector (Roschlau, 1989); this also applies to major highway developments such as the North-South highway (Rimmer, 1990). As stated in section 4, the country now has its own national car industry which is heavily subsidised by the Federal Government, and the national 'Proton' car is protected in the economic marketplace - prices are 12-17% less than those of its rivals - and is thus the most widely owned car in the country (The Economist, 1991). By 1970 road transport had replaced rail transport as the cheap transport means to facilitate further social, economic and large-scale agricultural developments (Kandiah, 1972) and there appear to be no moves to redress this imbalance: road transport still gets the lions share of the transport budget (Chua, 1983) and since 1985 the Government has been involved in rural road expansion programmes (Barwell et al, 1985). The Federal Government continues to offer no operating subsidy to transport operators.

When one examines the organisation of transport in Malaysia the prospects for sustainable transportation policies become even bleaker. Despite the production of five yearly national plans for transport, detailing projects which are to be financed by the Federal Government, responsibility for transport is split between five Federal ministries. Policy and decision making thus becomes laborious as a result of varied bodies operating within their own interests. The concentration of power at a national level offers limited opportunity for individual initiative (Chua, 1983) and can delay the approval of, and implementation of, valuable transport schemes at local level. Environmentally sustainable transport, as discussed, needs coordinated planning if it is to be workable. In view of all

8 SUMMARY AND CONCLUSIONS

Are democracy and sustainability - especially within the realm of transport - compatible? The often cited example of it needing Julius Caesar's dictatorship to lessen Rome's chariot problem would appear to suggest not. One senses a tendency for governments to pretend that safeguarding our environment involves very little lifestyle change; all that is apparently required are a few energy efficiency measures and all will be resolved. This is clearly political procrastination - no real condemnation of current consumption patterns takes place and no real agenda is set out: thus manifests the reality and the rhetoric. Within the field of transportation sustainability partly comprises of persuading people to restrict their car usage, or switch completely to other forms of transport: this is not an easy task given the often poor provision of public transport and the layout of today's towns and cities. The perceived unpopularity of the necessary car restraining policies are preventing governments from advocating radical policies which would ease the current situation.

The private sector is unlikely to help matters. The very ethos of environmental sustainability is probably unpopular with many businesses who see it being in direct competition with their balance sheet. Even if this were not the case the private sector is attracted to the more polluting forms of transport, rather than the 'environmentally friendly' high capacity rail based modes, which traditionally have been financial disasters. Environmentally sustainable transport therefore is heavily reliant upon state finance and commitment.

Pollution and environmental depletion are world problems which can impact on a worldwide level. With the western economies increasingly relying on their service sectors and transferring their centres of manufacturing to the Third World, 'their' pollution rapidly becomes 'ours'. Here, unfortunately, there is little room for optimism: both the governments and peoples of the developing world are unlikely to actively support environmentally sustainable transportation; cars have a positive image, are often essential to a country's economy and the externalities associated with congestion impact mainly on the poor who have little influence over policy formulation. Whilst there is room for improvement in terms of traffic law enforcement, alternative mode availability and vehicle efficiency, there seems to be no way of reducing the citizens of the developing world's love affair with the car.

The private sector in the developing world is, like its counterparts in the developed world, attracted to the more unsustainable forms of transport. The work carried out at the Centre for Transport Studies, showed that even if the private sector in the industrialising world is attracted by the marketable nature of sustainable transportation, it is loathe to implement the commensurate concessions. Therefore, in the developing world also, the state needs to coordinate the drive for sustainability; this is unlikely given the institutional framework and social structure of many nations.

Yet this myopic state of affairs serves to benefit no-one: no Government wishes to see itself leading a nation whose economy has been crippled by environmental depletion. So if it is assumed that secretly some Governments could eventually hanker for sustainability, the problem would seem to be one of political popularity. It is commonly said that it is not possible to stop people from wanting to use their cars. Is this true?

If one considers the rapidly growing worldwide 'block of demand' for private car usage, is it better to allow this to grow unabated and then restrict the negative effects through some form of price mechanism, or to attempt to slow the growth of the block itself? Put more plainly, is it more desirable to allow people to procure cars, and then prevent them from using them - thus breeding resentment and political unpopularity - or to try to persuade people that current patterns of vehicle usage are undesirable? If one examines the current debate on crime prevention, then the majority of measures being advocated to prevent car usage, correspond to those which suggest stiffer penalties, more jails and more policemen as the way to prevent crime. What about the measures which would prevent people from offending (or driving) in the first place? Perhaps if more information about the affects of excessive car usage were broadcast, to counteract the continual diet of pro-car advertising which the media presents the public with, then it would be possible to stop a small fraction of people wanting to use their cars. This slowing down of the rate of demand could probably have more effect than forceful demand restraint, which in any case may sometimes be socially inequitable.

Sometimes the general public are more amenable to change than they are given credit for. No one would wish to see their offspring inhabit a environmentally depleted planet; most people, however, find gloomy hypothetical scenarios difficult to rationalise with their day-to-day lives. Perhaps environmentally sustainable transport can be marketed successfully to a section of the general public, thus giving them a reason to initiate lifestyle changes. Mass education on the environment and patterns of energy usage could cause many people to want the reality of sustainability. Any advertising campaign, however, would have to come from the public purse with the aim of facilitating overall economic and social efficiency. Here lies a major obstacle: how would the oil companies, construction firms and car manufacturers react to this? One suspects none too favourably. The sad fact of the

matter is that no government is going to take steps to educate its people on the evils of an unsustainable lifestyle, when in many cases the impact of this would be to handicap many of the businesses who form the bedrock of their economies. Such powerful vested interests cannot be good for sustainability which requires coordination of all parties. Whatever politicians say, it is fairly obvious, that whichever part of the world one considers, the transport future, indeed the future generally, looks an ever increasingly unsustainable one.

9 ACKNOWLEDGEMENTS

This paper has benefited from the comments and advice of Dr Kay Axhausen at the CTS and the comments of Dr Phil Goodwin of the University of Oxford. It should be pointed out, however, that the opinions contained herein are solely those of the author.

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