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Practical Lessons for Winning Support for Radical Transport Proposals

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Abstract

This paper proposes that while many plans and solutions to the transport problems of the 21st Century have been mooted, very few have succeeded in significantly improving the situation within Europe. It is suggested that many schemes face problems at the project implementation stage due to adverse public and/or political reaction. This paper incorporates a series of vignettes, several of which are based on indepth interviews with practitioners directly involved in the implementation of the schemes in question. It looks at several existing 'radical' transport schemes from around the world in an attempt to draw lessons as to how they overcame this, not least in terms of how the implementation of alternative strategies by European policy-makers could be shaped and adopted world-wide.

Keywords

case studies, policy implementation, TDM, transport demand management, transport policy.

Introduction

It is widely acknowledged across the developed world that transport systems within many of its member states are stretched to breaking point. Since the 1950s, nearly all developed countries have witnessed a 'mobility explosion'. For instance, between 1991 and 2001, car and taxi traffic levels in billion vehicle kilometres increased by 12% in the United States, 44% in Japan, 8% in Germany, and 14% in Great Britain, while usage almost doubled in Portugal (85%) and more than doubled in Spain (107%), while usage appears to have fallen in Ireland and Sweden (DfT, 2003).

This has resulted from an increase in road capacity, income and population. Both income and population growth are viewed as the major drivers behind increasing vehicle ownership and use (Marshall *et al.*, 1997; Marshall and Banister, 2000).

Between 1970 and 2001, vehicle ownership in the EU-15 almost tripled from 62.48 million to 184.70 million. Thus, by 2001 there were 488 cars per 1000 EU-15 inhabitants (Eurostat, 2003). A report by the OECD

predicted that this would increase by a further 50% between 1995 and 2020, resulting in vehicle ownership levels of more than 600 per 1000 people in many EU-15 countries (OECD, 1995a).

While many plans and solutions have been debated, none has yet succeeded in significantly improving the transport situation within Europe. For instance, in the UK, road user charging has been consistently touted by academics and transport planners as the ideal policy mechanism for traffic reduction since the 1960s, but was only implemented for the first time on a sizable scale in February 2003. Moreover, the long term future of the central London scheme is still by no means guaranteed, with the Conservative Mayoral candidate Stephen Norris having declared his intention to abolish the scheme if elected (Wolmar, 2004). It is suggested within this paper that many of the problems experienced when trying to introduce 'radical' transport schemes are due to public and/or political opposition at the project implementation stage. A number of additional barriers - most notably resource, institutional and policy barriers, social, cultural, legal, and physical barriers – have also precluded such actions (Banister, 2002).

The most difficult barriers to overcome are the social and cultural barriers, which can also be described as public and/or political opposition. This perception is supported by Gunn (1978) in a seminal paper on 'perfect implementation' which has particular relevance in the transport sector (Ison and Rye, 2002). Gunn states that 'the circumstances external to the implementing agency should not impose crippling constraints'. In other words, for implementation to occur, one needs to ensure that the policy is acceptable to all parties that have the power to veto it (Ison and Rye, 2002). Assuming rational behaviour, the policy-making actors will devise strategies for the implementation process, which will result in maximising their own benefits: as such there will be both winners and losers and/or successful and unsuccessful implementation. There are examples of urban areas that have managed to implement radical

car restraint policies without the associated negative consequences often experienced.

The aim of the paper is to examine a selection of existing schemes from across the world and briefly describe some of the common difficulties faced by those responsible for implementing transport projects. In order to achieve this objective a series of vignettes were constructed based on in-depth interviews with key stakeholders, which is all important when attempting to understand the reasons for scheme implementation. The paper explains how transport practitioners have overcome adverse public reaction in practice. For example, the paper outlines how the 'Ring of Steel' in London was introduced, how Electronic Road Pricing was 'sold' to the public in Singapore, and how motorists pay to enter Manhattan and San Francisco via bridge and tunnel charges. Eight strategies are identified for future policy implementation. Four of the strategies focus on 'sweetening the pill' of potentially unpopular measures while three aim to convince the motorist that the new policy is in fact a reasonable response to the traffic problem. The final strategy suggests that transport policy goals need to be met through the sympathetic introduction of other ostensibly unrelated policies - or 'joined-up' policy-making. Finally the paper offers some lessons for European policy-makers, revealing how 'alternative' implementation strategies could be shaped and adopted within Europe.

It is important to state at the outset that the case studies are at a high level of generalisation. In each case one key issue/aspect has been identified. This is not to say that the implementation of any such initiative can be distilled down to simply one factor but the aim has been to offer an insight which may provide an important catalyst for change in urban areas worldwide.

What is meant by 'Implementation'?

The term 'implementation' can be defined in many ways. For the purposes of this paper, 'implementation' can be viewed as: 'policies, actions or decisions relevant to the target population that can be put into effect at 'street level', and 'implementers' as those responsible for doing that. As the definition implies, the policy process does not end once agreement has been reached on a proposal. The agreement still has to be implemented before the policy has any real existence. Bardach (1977) has described the implementation process as a game (see also Mendrinou, 1996, 13–16). According to Lane (1995), there are a number of aspects of the implementation process other than the accomplishment of the policy objectives. These include:

 the strategies and tactics employed by various parties to the implementation game;

- · the mechanism of delay as a decision parameter;
- the variety of motives among the participating actors; and
- $\bullet \;\;$ the need for coalition building and fixing the game.

As implementation theory suggests, one of the most favourable conditions for successful implementation is where policy-makers and implementers develop a cooperative relationship (Richardson, 1996, 290). Indeed, Cram (1997, 84) suggests 'if policies are formulated in the absence of active and enthusiastic participation by those whose co-operation is essential at the implementation stage, then implementation failure is more likely'. Pressman and Wildawsky (1984) suggest that correct implementation usually involves several semi-independent organisations or agencies, each of which can, to a large extent, block or change the direction of implementation. When a situation arises where implementation failure becomes so evident that a process of 're-steering' (Lundquist, 1972, 33) has to take place, policy-makers must take action to encourage or force implementers to behave in ways more likely to achieve the set policy objectives (Richardson, 1996).

The Alternative Strategies

The following vignettes form practical examples of how existing examples of radical transport schemes might be classified according to a simple strategic implementation framework.

Compensating losers

The introduction of road user charging in Singapore in 1975 has long been seen as a 'one off' event, which was only possible because of unique circumstances not least in that the citizens are essentially law abiding, and that there are no alternative cities for businesses to relocate to. While this certainly played a large part in the introduction of the original low-tech Area Licensing Scheme which used paper windshield stickers enforced through visual inspection by traffic inspectors within a single cordon, it was somewhat less important when an Electronic Road Pricing system was adopted in 1998.

Instead, what is less well publicised is that the Singapore Government made a policy decision to ensure that the majority of people benefited as a result of the change. This was achieved by granting rebates to certain road user groups. For example, taxis were given road tax rebates for the first three years after implementation, while businesses were given four years of rebates. In addition, a S\$60 a month levy imposed on owners of non-residential parking spaces was replaced by a nominal S\$1 per space per month licence fee in the same year. In other words, the Government effectively 'bribed' the public to ensure that the scheme had a chance of working in the first year, and gambled on the scheme being accepted by the

time the rebates were withdrawn.

Such an approach was suitable as the main objective of the scheme was – and is – to manage traffic levels rather than raise revenue. The costs of the 'subsidies' were written off as a necessary implementation cost.

Bribing the motorist not to drive

Certainly the most overt way of 'incentivising' drivers out of their cars is by paying to them not to use their cars for certain trips – i.e. effectively bribing motorists to use an alternative mode. One application of this principle – the parking cash out – is becoming increasingly common in the UK. Annual schemes operate at Southampton General Hospital (Bailey, 2002) and at Orange's new Bristol office (Baker, 2003), while a monthly pass system operates at the Vodafone offices in Newbury, Berkshire (Hopkins, 2003).

Still more radical, the pharmaceutical giant Pfizer began operating a parking cash out scheme that rewards non-car commuters on a daily basis among staff at its research and production facilities. The scheme was launched at Sandwich, in Kent in June 2001 and at Walton Oaks near Reigate, Surrey in December 2001 (Elliot and Chadwick, 2002). This works by using staff personalised security pass 'proximity card' technology with an employee's card credited with enough points to 'pay' for one month's parking. The card opens the parking barriers and records how many points are used. If not used for parking, staff then cash in these parking points at the end of each month, which are paid through the payroll. Staff at the Sandwich site receive £2 per day for leaving their car at home, while at Walton Oaks the incentive is £5 a day - a reflection of the far tighter parking standards set by the local planning authority at the Reigate site. Overall, it is estimated that the value of cash outs given to staff will amount to approximately £0.5m a year, and currently around one-third of staff travel to work by modes other than the private car.

It is not only parking spaces that motorists are paid to give up – in some cases they are paid to give up their cars. For example, during Green Transport Week in June 1999, public transport operator 'First Glasgow' introduced the 'Swap a banger for a bus' scheme, which led to more than 500 residents from Glasgow swapping their car for an annual bus pass worth £560 (BIA, 1999). In the U.S.A. too, a car cash out project is being tested by the State of Washington and public transport operator King County Metro in Seattle, through funding from the Federal Highway Administration value pricing programme (VPP, 2001).

Highlighting the benefits

By contrast in Oslo, road tolls were introduced in the city to raise money in order to pay for new transport infrastructure, and not to reduce traffic congestion. This meant that the 'rebate route' might exempt too many people for the required amount of money to be raised. Indeed, the charges introduced were relatively low and were spread across the 'population' as far as possible so that they could maintain traffic levels and maximise revenue.

In the Norwegian case therefore, the important objective was to convince the public that the money they were being asked to pay was being used to directly benefit them as motorists. Accordingly, much effort was spent on a well targeted and publicised information campaign, which was aided by the charge being implemented only 14 days after the Oslo Tunnel (i.e. *Festningstunnelen*) was opened to traffic.

Offering more choice to the road user

The key reason for drivers accepting the High Occupancy Toll (HOT) lane facility on Interstate 15 to the north of San Diego, is that drivers are offered a genuine and informed choice. Motorists can use the general purpose lanes for free with the likelihood of being delayed, or else they can pay but enjoy a hassle free and predictable journey time.

The HOT facility originally opened in 1988 as a High Occupancy Vehicle lane to buses, vanpools and two-person carpools (Shreffler *et al.*, 2001). In 1991, it was suggested that the lanes could be opened to single occupancy vehicles (SOV) as only 50% of the two lanes' capacity was being utilised while adjacent general-purpose lanes were experiencing severe congestion during peak periods. It was not until December 1996 that the HOT lane became a reality.

As drivers approach the HOT lane, variable message signs advise them of the toll to use the facility. The level of this toll depends on how much spare capacity is available in the general purpose lanes, and varies from US\$0.50 to US\$4 in normal circumstances, with drivers paying more to use HOT lane when the general purpose lanes are congested. Around US\$430,000 of the annual US\$1.6m toll revenue covers operating costs, and US\$60,000 is received by the California Highway Patrol in order to enforce the operation of the lanes. State law requires the remaining money to be spent on developing the express lanes and improving the public transport service along the corridor, specifically, the express bus service known as the Inland Breeze, which began operating in November 1997. While initially there were concerns that these would become 'Lexus Lanes' - i.e. only used by the rich – this has not been borne out in practice.

The lesser of two evils

Related to this, is the idea that the public is provided with two choices, one of which is even more politically unpalatable – yet just as logical or reasonable – as the favoured one. A recent example of this approach occurred in the City of Durham before

the introduction of the congestion charge near the Cathedral in October 2002 (Ieromonachou *et al.*, 2003).

In summary, the problem was that traffic was causing problems for the World Heritage Site of the city's cathedral and castle, as well as for pedestrian shoppers in the city centre. Accordingly, a transport study demonstrated that action needed to be taken – a position appreciated by almost everyone – either car drivers were to be charged for driving in the congestion area or else banned altogether. Given the alternative, it became the less controversial route for the council to adopt the access charge.

It might have been worse...

A similar tactic was used to herald the introduction of London's Congestion Charge in February 2003. Hostile newspaper reporting prior to the introduction of the charge and predictions of traffic chaos by the London Mayor (Webster, 2003), combined with a lessening in traffic due to a half term school holiday, meant that for the first week the charge performed far better than expected. Consequently, after the first week of congestion charging the scheme was seen as a policy success. Further research is obviously required, however, before labels such as 'success' or 'failure' can be assigned to this scheme.

Adapting tried, tested and accepted methods

Despite the recent media frenzy surrounding the launch of the London Congestion Charging Scheme in February 2003, two cities in the USA (San Francisco and New York City) have been charging vehicles to enter or exit downtown areas for many years. The two cities were able to introduce such a measure with virtually no adverse political problems. Drivers are required to pay tolls to cross eight 'Caltrans' bridges in the Bay Area of California, including the four bridges to enter San Francisco (Caltrans, 2000). Similarly in New York City, drivers crossing into Manhattan must pay to use seven of the city's bridges and two tunnels (MTA, 2003). This apparent public acceptance indicates that drivers are happy to pay to use a facility such as a bridge or a tunnel, whereas the idea of paying to enter the downtown area of a city would be extremely controversial. Fundamentally though, it could be argued that there is no real difference in that both are paying to use a designated section of road. The lesson here would therefore seem to be that 'traditional' charges that have been in place and accepted for many years might do an equally effective job as something seen as new, radical and threatening, but with rather less opposition. In addition, paying for a new 'service' is less galling than paying for something that previously cost nothing.

The Trojan Horse

Perhaps the classic case of a transport policy being introduced by a 'trigger mechanism' – i.e. on the back

of a totally unrelated policy – is that of the so-called 'Ring of Steel' imposed on the City of London in 1993. This policy was instigated almost overnight in response to a terrorist bomb attack in Bishopsgate, and involved restricting access to the central core of the city. In addition to the closure of 17 minor streets and the conversion of 13 roads to one way, traffic signals were altered at 23 junctions and public transport and pedestrians were given greater priority (Cairns *et al.*, 1998). Overall, as a result of what was a security policy – in the eyes of the public at least – traffic entering the restricted area fell by a quarter from 160,000 vehicles a day, and pollution levels were 15% lower. There was however, a slight increase in traffic levels on the zone boundary.

Interestingly, the bomb exploded only a month before a traffic scheme known as "The Key to the Future" was due to be implemented that was also designed to restrict traffic for environmental reasons, and so significant elements of this proposal were incorporated into the security operation.

The Manchester bomb that exploded on Corporation Street in the City Centre on 15 June 1996 caused severe damage to the buildings and infrastructure of the city's retail and commercial district and enabled the city stakeholders (e.g. local politicians, residents and retail organisations) to think boldly about transport issues. The bomb resulted in the closure of four central streets and yet the city continued to function normally. As such, the closures were made permanent as far as general traffic was concerned with a small number of streets being pedestrianised, whereas in other streets, access was limited to buses, taxis and servicing vehicles, or in some cases, the direction of traffic was altered thereby changing the routes of some of the city's bus services (GMTU, 2001).

Overall therefore, it may be worth transport planners becoming more involved with the Emergency Planning sections at local councils. A note of warning is that care must be taken in choosing the 'right sort' of emergency. For example, the fuel shortages caused by a blockade of refineries by hauliers and farmers during September 2000 - arguably an unforeseeable emergency - were blamed on the Government and not the protesters, due to the high level of tax on fuel, presumably because it is under the Government's control. It is questionable whether this was the right sort of 'emergency'. War or problems in the Middle East on the other hand, have allowed Governments to ration petrol (or at least prepare to ration petrol). In the UK petrol rationing was implemented between 23 September 1939 and 26 May 1950 due to the Second World War, and again in 1956 because of the Suez Crisis. In addition, it was almost adopted during the oil shocks of 1973 and 1979 (Harman, 2002).

Table 1: Radical transport schemes should be	
WISE	So the public perceive there is a problem and the policy seems a reasonable way of solving it
COMPENSATORY	So the public see they benefit from the scheme, are compensated in some way for any disbenefits, or are provided with a viable and acceptable alternative means of travel
SUPPORTED	So the public feel that other organisations or individuals are convinced the scheme is the right way to go
CONSULTED	So the public feel they have been properly consulted as to their opinions, and these have at least been listened to and ideally acted upon
INDISPENSABLE	So the public feel there is no alternative (or that it is the least worst alternative)
COMPARABLE	So the public perceive that the scheme is not so different to existing schemes or if they have had experience of similar schemes
STIMULATED	So the public believe that the scheme is implemented as a response to some kind of crisis that is beyond the Government's control – e.g. an act of terrorism or a national emergency – or obviously for the public good – e.g. drink driving, security

Finally, deteriorating air quality due to high traffic levels and unfavourable weather conditions have led to Paris and several Italian cities adopting 'alternate plate' days, whereby only traffic with an odd or even numbered registration plate is allowed into the city, and even to total traffic bans. Such action has been driven by concerns over poor health. Similar conditions could perhaps be created by taking advantage of particularly bad weather or some other 'Acts of God', or more predictably by maintenance problems closing roads, bridges (e.g. Hammersmith Bridge, see Rees and Williams, 1998) or car parks (for example, Lancashire County Council was forced to close an employee multistory car park due to structural problems in early 2003).

'Conventional' Implementation of Good Practice

The vignettes highlight a number of important lessons that can be learnt from the successes and failures of radical demand management schemes to date. As demonstrated by the Cambridge experience of road pricing (Ison, 1998), these are not necessarily always about the technology issues but can often be about how schemes are designed, the effective inclusion of user concerns and political sensitivity. For example, there has to be a climate for change, i.e. congestion should be perceived as a major problem before the public are likely to accept a change in policy direction. In other words, the proposed policy or scheme needs to be supported by politicians of all political persuasions and the general public need to understand the problem before they are likely to accept or even support it.

Those responsible for developing the policy or scheme can only gain public acceptability if the *aims* and objectives are clearly defined, complementary to other sectoral policies and widely inclusive at all stages of the decision making process – from as early on in the process as possible (Wixey & Ruiz, 2003).

Achieving at least some of the benefits promised as quickly as possible, yet at the same time not trying to

achieve too much in the early stages are also vital lessons that can be learnt from some of the 'successful' schemes highlighted above. In other words, it could be argued that piecemeal implementation may create better results than implementation by stealth. One of the criticisms often levelled at transport schemes is that they do not offer a realistic alternative to travellers who wish to switch from the car. Fortunately, this was a lesson that the London Congestion Charging scheme took on board, and an increase in the number of buses and bus routes provided meant that there was a realistic alternative in place before the congestion charge was introduced.

One of the most important lessons to be learnt is that the implementation process needs to be both *transparent and flexible*. The process must be able to adapt to changing circumstances, public attitudes, objectives and technology changes and that it can react to 'unexpected' events.

Additional levers

These 'conventional' lessons are certainly important. But what the vignettes also demonstrate is that in many cases of successful implementation there were additional factors that helped transform uncertain outcomes into positive results. These are summarised in Table 1.

Clearly, the strategies suggested above are already implemented to varying degrees in most transport projects, but have possibly not been set out quite so bluntly in the past. It is also obvious that the appropriateness of some or all of these strategies is strongly dependent on the particular circumstances of a proposed scheme.

Conclusion

This paper has shown that there is no single model of policy implementation that will guarantee a successful policy outcome. It is clear that in many of the more radical schemes adopted around the world, additional strategies have been employed, either deliberately or almost accidentally. The evidence also suggests that there is scope for combining suitable strategies in order to increase acceptability still further. This paper has provided an alternative way of looking at the implementation process.

It is the implementation of a project – and in particular in convincing the public and/or local, national and European politicians – rather than the planning or even the financing of a project that determines whether it should go ahead or not. As this paper suggests, it must be recognised that modelling the process of executing public policies – i.e. the implementation process – is different from evaluating the extent to which objectives have been accomplished – the implementation assessment. In essence, not all policies that are 'successfully' implemented actually meet their original objectives.

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References

Bardach, E. (1977) *The Implementation Game* MIT Press, Cambridge, MA.

Bailey, T. (2003) *Personal communication* Southampton General Hospital, Southampton.

Baker, L. (2003) 'Orange Travel Plan Update' Presentation to the Groundfloor Partnership, Sainsburys, London, 21 January.

Banister, D. (2002) 'Overcoming barriers to implementation' Draft paper presented at the STELLA Group 5 Meeting on Institutions, Regulations and Markets in Transportation, Brussels, 26–27 April. Bus Industry Awards (1999) *Guide to the 1999 Bus Industry Awards* London, November.

Cairns, S., Hass-Klau, C. and Goodwin, P. (1998)

Traffic Impact of Highway Capacity Reductions:

Assessment of the Evidence Landor Publishing, London.

Caltrans (2000) 'The Bridges on San Francisco Bay'

California Department of Transportation Sacramento,

CA. November.

http://www.dot.ca.gov/dist4/calbrdgs.htm accessed 27 February 2003.

Cram, L (1997) *Policy Making in the EU* Routledge, London.

DfT (2003) *Travel Statistics Great Britain: 2003 Edition* Department for Transport, London, October. Elliot, J. and Chadwick, S. (2002) *Interview* Pfizer, Sandwich, June.

Eurostat (2003) *European Union Energy and Transport in Figures 2003*, European Commission Directorate-General for Energy and Transport in cooperation with Eurostat, Brussels.

http://europa.eu.int/comm/dgs/energy_transport/fig ures/pocketbook/2003_en.htm. accessed 31 May 2004. Greater Manchester Transportation Unit, (2001) 'Manchester City Centre Driver Questionnaire Surveys' GMTU Report 732, GMTU, Manchester. Gunn, L.A. (1978) 'Why is implementation so difficult?' *Management Services in Government* 33, 169–176.

Harman, R. (2002) 'Fuel tax protests and fuel rationing – An historical perspective' in Lyons, G. and Chatterjee, K. (eds.) *Transport lessons from the fuel tax protests of 2000* Ashgate Press, Aldershot. Hopkins, C. (2003) *Interview* Vodafone UK, Newbury, Berkshire, 8 August.

Ison, S. and Rye, T. (2002) 'Lessons from travel planning and road user charging for policy making: Through imperfection to implementation' presented at IMPRINT-EUROPE Thematic Network, Implementing reform on transport pricing: Constraints and solutions: Learning from best practice, Brussels, 23–24 October. Ieromonachou, P., Enoch, M.P. and Potter, S. (2003) 'All Charged Up: Early Lessons from the Durham Congestion-Charging Scheme' *Town and Country Planning*, 72, (2), February, 44–48.

Lane, J.-E. (1995) *The Public Sector: Concepts, Models and Approaches* Sage, London.

Lundquist, L. (1972) 'The Control Process: Steering and Review in Large Organisations' *Scandinavian Political Studies* 7, (5).

Marshall, S., Banister, D. and McLellan, A. (1997) 'A strategic assessment of travel trends and travel reduction strategies' *Innovation: The European Journal of Social Sciences* 10 (3), 289–304.

Marshall, S. and Banister, D. (2000) 'Travel reduction strategies: intentions and outcomes' *Transportation Research Part A* 34, 321–338.

Mendrinou, M. (1996) 'Non-Compliance and the European Commission's Role in Integration' *Journal of European Public Policy* 3, (1), 1–22.

MTA (2003) 'Bridges and Tunnels' Metropolitan Transit Authority, New York.

http://www.mta.nyc.ny.us/bandt/index.html accessed 27 February 2003.

OECD (1995) Motor vehicle pollution: Reduction strategies beyond 2010 OECD, Paris.

Pressman, J.L. and Wildawsky, A. (1984)

Implementation 3rd edition University of California Press, Berkeley, CA.

Rees, J. and Williams, T. (1996) 'Degeneration: Hammersmith Bridge Closure' presented at Association for European Transport Conference, 14–18 September, Loughborough.

Richardson, J. (ed) (1996) European Union: Power and Policy Making Routledge, London.

Shreffler, E., Schumacher, D. and Pesaro, B. (2001) *Interview* SANDAG (San Diego Association of Governments), San Diego, CA, June.

VPP (2001) 'Pricing projects initiated in 2001' Value

Pricing Programme Notes US Department of Transportation, Federal Highway Administration, Washington, DC, No.7, Fall.

http://www.valuepricing.org accessed 14 December 2001.

Waerstad, K. (2002) *Telephone interview* City of Oslo, Oslo, 18 July.

Webster, B. (2003) 'It will be bloody on Monday, admits Livingstone' *The Times*, London, 13 February.

Wixey, S, and Ruiz, M. (2003) 'Barriers to Successful Implementation of Mobility Management Strategies' paper presented at the 35th Annual UTSG Conference, 6–8 January, Loughborough University, Loughborough. Wolmar, C. (2004) 'Be bold and charge motorists ten quid' *The Times*, London, 17 February. Wong, K., Lim, L.C. and Chan, S.H. (2002) *Personal interview* Land Transport Administration, Singapore, 5 July.



A ferry departs Coilleag a'Phrionnsa, Eriskay, destination Aird Mhor, Barra, Outer Hebridies, Scotland, April 2003.