

5.

APPROACHES TO SUSTAINABLE MOBILITY

by Emin Tengström

5.1 The role of transport in society

As has already been indicated, there is a trend towards increased mobility in all modern societies. The increase in individual mobility is due to a number of causes: demographic, institutional, technical, together with economic growth, and to the geographical structure of cities and regions, to the localisation of different activities and to changed life-styles. Increasing freight transport is a consequence of economic growth as well but also of increased specialization and dispersed localization of industrial production.

Freight transport has no value in itself but represents only a cost to the consumer. Passenger transport, on the other hand, might have a value in itself (for instance, driving for pleasure or holiday trips) but in terms of daily commuting it may be seen as a pure cost in time and money. Individual mobility as a whole,

The Commission draws the conclusion that the transport sector today is “unsustainable in the medium to long term due to its broad environmental impact”.

(EEC White Paper ‘The Future Development of the Common Transport Policy: a Global Approach to the Construction of a Community Framework for Sustainable Mobility’ presented by the EC Commission on December 2nd 1992.)

however, is usually an important aspect of people’s welfare and their quality of life.

At the same time, however, motorized transportation contributes quite considerably to the gross national product (GNP) of a country. It is usually estimated that every tenth Swedish krona is spent on motorized transport (the car industry, car services, transport companies, public transport, etc.). In Germany, according to similar estimates, every seventh

Deutschmark is spent on motorized transport.

5.2 Traditional transport policy

The basic aim of traditional transport policy has been to make transport systems as efficient and safe as possible in the interest of citizens and business (and sometimes in the interest of the military forces). The politicians have therefore been involved in the construction and financing of the transport infrastructure. In the 19th century, the expansion of the railways was the focus. In the 20th century, the expansion and upgrading of the roads network was at the forefront of transport policy. The great number of accidents, particularly on the roads, has also influenced traditional transport policy. A variety of measures have been introduced to increase the safety of transport users.

Growing ecological awareness in the late 1960s and early 1970s introduced a new type of problem to be dealt with by transport policy. Technical development was for long regarded as the main instrument for solving the problems of emissions. ‘End-of-pipe’ technology and alternative vehicles (steam cars and electric cars) as well as alternative fuels (ethanol, methanol, natural gas, etc.) were introduced into the debate. In the 1970s, the vulnerability of current road transport systems became obvious during the two energy crises of 1973 and 1978.

Around 1990, the problem of global warming began to influence the debate on transport policy. Referring to the Brundtland



Fig. 5.1 A sustainable transport system will have to rely more on public transport – and bicycles.

Report 'Our Common Future' (1987), new transport policies were developed aiming at creating sustainable transport systems or the sustainable mobility of people and goods.

5.3 Transport policy on sustainable mobility

The most important political document in Europe concerning revised transport policy is the EEC White Paper 'The Future Development of the Common Transport Policy: a Global Approach to the Construction of a Community Framework for Sustainable Mobility' (COM/92/494). It was presented by the EC Commission on December 2nd 1992. It was later approved by the Transport Ministers of the European Union.

In this document, the Commission admitted the conflict between transport and the environment and described the serious problems associated with the transport sector's energy consumption, its operational pollution, its land intrusion, etc. The Commission regarded current emissions from the transport sector as a serious problem for the local and regional environment and looked upon global warming as a serious future threat. The Commission drew the conclusion that the transport sector was "unsustainable in the medium to long term due to its broad environmental impact" (§28).

The Commission mentioned a long series of possible measures which could contribute to the goal of creating "transport systems that will provide services efficiently, safely and under the best possible environmental and social conditions". When it came to the implementation of the new policy, however, the Commission, as a consequence of the principle of subsidiarity, referred to the decisive role of national and local governments.

Some of the countries in the Baltic region have developed action plans for creating sustainable transport systems. Denmark had already presented such an action plan in 1990. Sweden is now

(1996) preparing a national plan for the transport sector aiming at sustainability.

To formulate policies is one thing; reality is often another. The following chapters will consider some aspects of current transport policies in order to identify a number of difficulties associated with the attempt to create favourable preconditions for the sustainable mobility of people and goods. The basic difficulty is, however, that a change aiming at the creation of long-term sustainable transport systems is a very complicated operation. It seems necessary to abandon all forms of fossil energy as the source of fuel for motorized vehicles and to develop alternatives that do not have a similar negative impact on ecosystems and the climate.

5.4 The perception of the problems

The view of the problems of the transport sector has become more alarming during the last decade. Such a view is not based on scientific facts but is rather a social construction, in which many actors have their roles. It is reasonable to believe that scientific discoveries are the basis of the construction. The role of the media is, however, also important. What they choose to focus on and what perspective they give the presentation of scientific discoveries can be assumed to have a substantial impact on the process of 'the social construction' of the problems.

The role of the political parties should not be underestimated. Under certain circumstances, the environmental profile of a political party may turn out to be very much rewarding in terms of votes. Commercial interests may also contribute to the construction of the view of the problems, particularly if there are new products which may sell better against a background of environmental threats.

The character of the social process constructing the view of the problems of the transport sector makes it possible for poli-

ticians to describe the situation as more or less serious (and they may have good arguments for both alternatives). This is the first important difficulty on the road towards sustainable mobility.

5.5 The formulation of the new goals in transport policy.

The second important difficulty is how to formulate goals and concrete objectives and how to set targets in quantitative terms.

It is first of all no easy matter to introduce new goals into official transport policy documents. Politicians are, and should be, sensitive to what their voters are willing to accept. So far, there is probably no majority in any country around the Baltic in support of a policy on sustainable transport.

Secondly, to define the concept of 'sustainable mobility' or 'sustainable transport systems' is far from easy. Political goals always have a certain rhetorical character but, if they are to be seen as serious, they must be defined in some acceptable way. So far, no definition of 'sustainable transport systems' or 'sustainable mobility' has gained general approval.

However, several countries in the Baltic region have set targets for the reduction of emissions of CO₂, NO_x, CO, etc. These targets are far from adequate for the purpose of establishing long-term sustainable transportation. This is particularly true for the emissions of carbon dioxides.

A final difficulty associated with the formulation of the goals of transport policy is the fact that there are several goals to be achieved at the same time: a transport system should be efficient, equally available to all, safe, silent, not too intrusive (or consume too much land) and now also sustainable. There are severe conflicts between some of these goals.

5.6 The selection of policy instruments and concrete measures

The next difficulty is associated with the selection of the policy instruments and concrete measures to be used to make the new goals of transport policy a reality. Traditionally in transport policy, three types of policy instrument have been common:

- (1) technical development,
- (2) urban planning and
- (3) economic incentives.

These three types of policy instruments will be described below. Other political instruments are law giving, information to the general public, education in schools, and pure propaganda, e.g. to increase traffic safety.

It is, however, also important to consider the possibility that traditional policy instruments are insufficient to realize the goals of sustainable mobility. More radical measures may be necessary. This is particularly true in the case of passenger transport. The reaction of the general public to a new series of transport policy instruments cannot be predicted. This makes the introduction of the issue of life-style and transport necessary to define the role of life-style changes in the debate on transport policy (see Chapter 8).

5.7 Implementing a new transport policy

The implementation of a transport policy on sustainable mobility is, of course, to some extent a question of time and money. But it is also, simply stated, a question of power. The main thing is to get support for the goals of the policy and the means of implementing it. This is far from easy. When the Dutch government in May 1989 tried to curtail the tax benefits for car commuters, this led to the fall of the government. The destiny of this government illustrates the difficulty of the problem of implementation.

As will be seen in the last chapter of this booklet, it is possible to identify a number of barriers which have to be overcome if a future transport policy towards sustainability is not to be a failure. The decisive factor in this process is probably the interaction between different social actors such as political parties, industry (particularly the car and oil industries), trade unions, motor organizations and other non-governmental organizations.

Finally, the role of public opinion is certainly a very important factor in the sustainable mobility of people and goods in the Baltic area. This is the way democracy works. It takes time and there are many barriers on the road to the goal.

There are certain criteria for the selection of policy instruments. The first one is the technical efficiency of the instrument. How much will it reduce the problems involved? A special example of this criterion is the cost efficiency of a measure (for instance, how many lives will be saved by two different road investments?).

A second criterion is the availability of a measure. For governments of small countries (as those around the Baltic), it is almost impossible to influence the development of car technology. Only important political actors such as the US government or, possibly, the EU Commission are able to influence car technology by the means sometimes called 'technology-forcing'. Other political actors have to confine their roles to stimulating the introduction of better technology. Market forces alone will probably be unable to solve the problems of unsustainable transport systems.

Finally, the political feasibility of a political instrument in transport policy is often decisive for its selection. Every politician knows that increasing tax on fuel is very unpopular. Members of the EU have also to consider the necessary harmonization of taxes in the European Community.

Instruments for changing transport policy

Instrument	Efficiency	Availability	Feasibility	Discussed in
Technical development	good	limited by economic resources	good	Chapter 6
Economic incentives	good	good	limited	Chapter 7
Urban planning	limited	limited	limited	Pages 30–31
Life-style changes	good	only by consent	limited	Chapter 8

Environmental-friendly cars



Renault Clio Electric

This electric car is based on the ordinary (petrol) version of Renault Clio. It's available on the market although still fairly expensive. Approximately 150 cars have been ordered by Swedish customers (until November 1996).



GM Ultralight

This 4-adult concept car features very low weight and good aerodynamics. It has very good acceleration, 0-97 km/h in 7,8 seconds. If it had instead been optimized for fuel-economy, the fuel-consumption could probably have been reduced below 3 l/100 km.



Volvo ECC (Environmental Concept Car)

This hybrid-electric concept car has very low emissions of HC (hydrocarbons) and NO_x. This is much due to the use of a gas turbine for the generation of electricity. The fuel consumption is low but not extraordinary. The main reason is that the ECC carries 350 kg of batteries.

Vehicle data	Renault Clio Electric	GM Ultralight	Volvo ECC
Seating capacity	4+1	4	4+1
Body material	Steel	Carbon-fibre composite	Aluminium
Drive	Electric(nickel-cadmium batteries)	Direct with advanced petrol engine	Hybrid-electric with gas turbine (diesel)
Curb weight	Ca 1200 kg	635 kg	Ca 1450 kg
Range	Ca 85 km	-	-
Top speed	95 km/h	218 km/h	175 km/h
Energy use	Ca 30 kWh/100 km	3,8 l/100 km (petrol) ¹	6,0 l/100 km (diesel) ²
For sale	Yes	No	No

¹ 1 l petrol=8,8 kWh
² 1 l diesel=9,9 kWh