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THOUGHTS ON SUSTAINABLE MOBILITY

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Abstract

The aim of this article was far from giving a comprehensive picture on all transport and environment related subjects. Rather, I wanted to call the attention to the rather complex nature of this 'business' that is surely requiring an interdisciplinary, holistic approach, to be taken reassuringly care of. Mobility or transport is clearly a significant achievement of humanity, of technological development, greatly contributing to the globalization of economy and society. However, it also creates several challenges for humanity that most of us have serious difficulty to accept.

Keywords: sustainability, transport, mobility.

1. Introduction

The intensive development of sophisticated infrastructure, that is one of the major prerequisites to economic and social development, is inevitable across Central and Eastern Europe (CEE). The prioritization of transport infrastructure (roads, railways, ports, airports, bridges, stations and logistic centres) constructions in the countries applying to European Union (EU) membership is seen as an important step in the preparation for the extension of the EU and the European market to the East. According to Wifo, an Austrian economic research institute, the volume of transport (in tons) in Austria is going to increase 5 to 7 folds after the Czech Republic, Poland, Hungary, Slovakia and Slovenia join the European Community. Similar increases are foreseen in the so called accession countries as well.

It is important to understand that accessible and fast transport plays a great role in the quality of our life and in our economic welfare. On the other hand, poorly planned and built transport infrastructure poses several dangers, creates many negative effects on the social and economic state of many developed countries. Amongst these public health and safety, environmental degradation and economic inefficiency concerns may be the most important ones.

2. Resource Demands of Transporting

It is clear that transporting people and goods requires plenty of resources. Societies where there are no natural resources (energy and raw materials), human

resources (educated and motivated workforce) and/or financial resources in abandon, traditionally have rather low rate of mobility. On the other side, in societies where resources are sufficient and economic development is prosperous, people and enterprises cannot cope, develop and sustain their social and economic systems without continuously improving their means of travel, trade of goods (and information exchange).

In light of the transport development in Western countries, it is seen that the least energy efficient transport modes of road transport and air traffic are increasing more rapidly than the more energy efficient modes of rail- and waterway utilizations. The number of road vehicles is growing continuously. In the CEE region this growth is rather rapid, due to the adaptation of Western values and systems, and to the relative economic upturn of the region. This problem is particularly prevalent in the urban areas that have not been planned, designed and built for handling highly motorized populations.

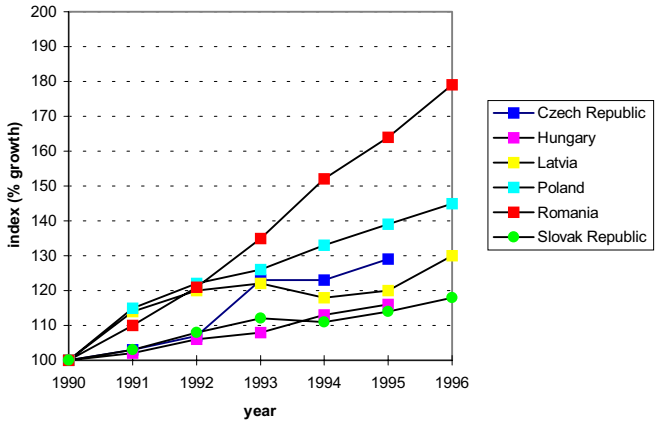

Fig. 1.

Fig. 1 indicates the growth in vehicle numbers in 6 CEE countries. These countries give an overall impression of fleet growth in CEE; other countries show similar trends, with the exception of Albania, whose relative fleet growth is more rapid.[1]

Public transport is still relatively well developed in CEE compared to many Western countries. On the other hand the infrastructure and management systems for public transport are concerningly running down and are inefficient, therefore there is a real and perceived need to improve the quality of life driving more and more people to buy and use automobiles. Undoubtedly, the perception of personal freedom, of power and ability to decide where and when to go or stop is very appealing in driving cars. In order to maintain the level of this freedom, more and more roads must be

[1] Source: The Phase-Out of Leaded Petrol in Europe, Main Report, UN/ECE Task Force, 1998.

built, otherwise the increasingly high number of 'happy campers' on the roads will cause great traffic congestions. This happening can be seen all over the developed and developing countries. The continuous road constructions, in turn, will attract even more people to opting for driving more often and to longer distances, be it commuting to work and/or enjoying their spare time. An 'evil' circle is created this way, where real freedom of mobility and quality of life are awfully deteriorated. A 'good example' of this is the M25 ring-road around London, UK, which is often referred to as the largest parking lot in Europe, but in fact most congested highways fight similar challenge close to and around large urban areas.

3. Disadvantages Caused by Transporting

Due to increasing environmental standards for industry, and to the inevitable and sometimes harsh restructuring of CEE's industry, most air pollution problems are resulted from transport nowadays, besides the biological contaminants triggering allergies. Most cities have recurring incidents with substandard air quality due to combustible engine emissions, sometimes or permanently posing hazard to the health of the citizens. Respiratory illnesses are on the raise, due to the various volatile organic compounds (e.g. benzine, benzol), photochemical products (e.g. ozone), carbon monoxide and dioxide, sulphur and nitrogen oxides, lead and other heavy metals, and various particulates (e.g. dust, sooth).

These pollutants, having been scientifically proven to contribute to serious health problems, strain the very expensive medi/healthcare systems thus the state budgets across the developed world. However, the occurring costs are rarely assessed, the externalities related to transport are not internalized, the polluters, the users obviously do not pay the real prices for their mobility.

Another major problem caused by transport is noise. It is known that noise is a great contributor to mental and physiological stress, and stress is responsible for, or at least a co-factor to many human/public health problems. Although there are different engineering solutions to effectively attenuate noise (e.g. application of noise barriers, design of less noisy engines and vehicles), often these approaches are not adapted in CEE because of their costs or because of lack of strict regulations and concerns about public health.

Public safety is another issue that needs to be raised in this context. Statistics show, back to several decades, that far the highest risk, taken day by day in civilized countries, is to roll out to the roads and highways. In the sixties, more American citizens died on the roads every single year than in the full course of the Vietnam Ware. Understandably, automobile manufacturers, road builders and transport policy makers have continuously been working hard to improve their systems and procedures, but the 'freedom seekers' cannot be easily controlled. Strangely, people do not perceive the risk of getting injured in their cars very high, but they are horrified by the occasional accidents in public transports, such as train derailments, plain crashes and sunken ships. Although statistically the probabilities are far lower

to get injured in a public transport accident than in a car crash, persons' perceptions are greatly influenced by the following things: (1) they have got the control, steer and brake and speed and have several choices every minute while driving, but they are at somebody else's mercy in a public transport vehicle; (2) while in most car crashes only a few persons get injured or die, in public transport accidents many defenseless persons lose their life; (3) while the technology involved in a car is relatively easy to grasp, many people can handle minor repairs and maintenance, the technology built into an airplane or even into a train, is relatively sophisticated, most people would feel totally hopeless to deal with any minor default.

Besides posing danger to human health, air and noise pollution, and also soil and water pollution resulting from various activities related to the transport sector (e.g. careless discharge of fuel and lubricants, cleaning, painting, etc.) are contributing significantly to environmental degradation. This can pose hazard to aquifers, to microorganisms, plants and animals, all through the foodchain.

A major area of environmental concern, very much in focus lately, is global climate change. Most countries in the world are facing a serious challenge to satisfy the Kyoto Protocol, or what have been spared from it in Bonn lately. Although on the global scale it is more the industry, especially large-scale power generation that is responsible for carbon dioxide (CO_2) emissions, the transport sector is also running amongst the major contributors, as it is shown in the following figure.

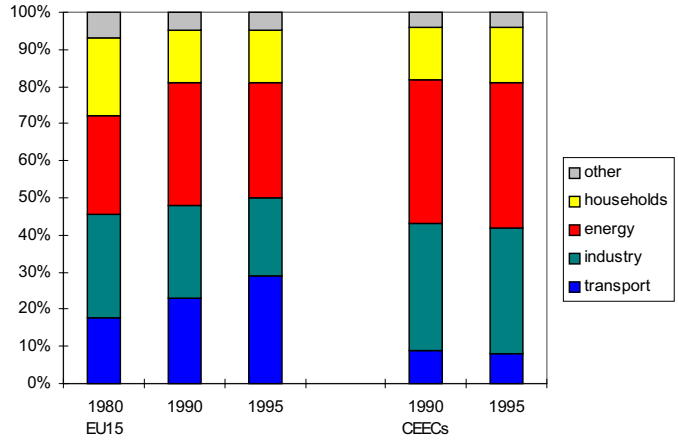

Fig. 2. CO_2 emissions (%) in EU15 and CEE[2]

Investigating further the transport sector for its responsibility to generate greenhouse gases (CO_2 in this case) we find that road transport is far the worst modality, contributing three quarters of this pollution, as it is shown below.

[2]Source: DG Environment: Europe's Environment, The Second Assessment (1998).

[3]Source: DHV and LT Consultants: Transport and the Environment, a Multi-Country Approach (1999).

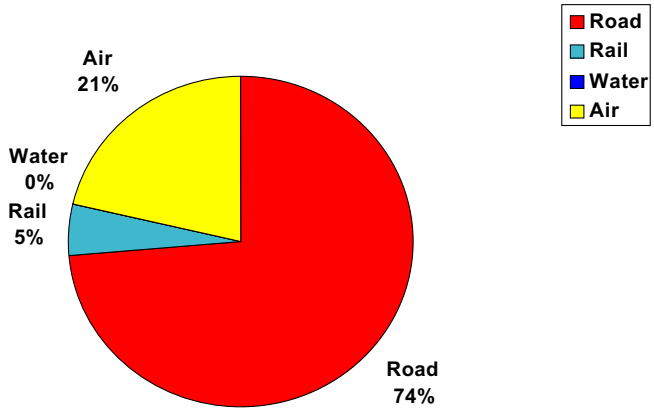

Fig. 3. Emissions of CO_2 from modes in transport sector based on data from Hungary and the Czech Republic, 1995[3]

4. What is the Solution?

We should logically question: what to do then? What could be the solution? How could we tackle these problems? Fortunately, there are thousands of scientists and engineers and policy developers working diligently to come up with the solutions. Unfortunately, none of their efforts, so far, has achieved more than perhaps slowed a bit down the rate of environmental degradation.

To indicate some of the valid objectives suggested by a recent thorough assessment of the transport sector in CEE, some thoughts were borrowed from the DHV and LT Consultants (1999) report:

The basis of their multi-country approach consists of 11 Key Objectives, which describe, at a strategic level, in which direction and how transport should develop. The Key Objectives focus on a common approach to solve environmental problems caused by the transport sector. In line with the overall EU transport policy, the aim is to promote environmentally sustainable transport. In addition to general objectives, Key Objectives are formulated per mode of transport, for urban transport and the transportation of dangerous goods, as it is seen below. No single Objective is sufficient to achieve the final transport-related environmental goals. Therefore, a package of Key Objectives was proposed for the CEE countries. The Key Objectives can be divided into three categories:

A. objectives to reduce emissions;
B. objectives to reduce transport demand and influence modal split, and
C. objectives to improve the environmental performance of transport infrastructure.

Key Objectives by Mode and Type

Table 1.

Mode	Category of objective	Key	Objectives
Road	A	KO 1:	To enhance the use of cleaner, more fuel efficient and quieter vehicles
	A	KO 2:	To enhance the use of cleaner fuels
	B	KO 3:	To limit the increase of (inter-urban) car traffic
	A	KO 4:	To reduce the noise nuisance along the main roads
Rail	B	KO 5:	To promote transport by rail
Water	B	KO 6:	To enhance the sustainable use of maritime and inland waterway transport for shipping of goods
Air	A/B	KO 7:	To strive for sustainable development of air transport
Urban transport	B/C	KO 8:	To improve urban traffic management
General	C	KO 9:	To improve the environmental performance of the transport sector
	B	KO 10:	To optimize combined transport
	C	KO 11:	To enhance the safety of transport of dangerous goods

From these objectives, a multi-country action plan and then concrete national implementation plans have been developed for each CEE country. Two years have passed by since this comprehensive work, and a very little bit has been done to start to implement the subscribed actions.

Recently, the EU has ratified a new directive on Strategic Environmental Assessment (SEA). This new legislation should drive planners and developers to adapt a truly complex approach taking such matters into consideration as land use, public and environmental health, environmental economics, regional development, public participation and access to justice. SEA will always require the assessment of different development alternatives/scenarios to incorporate more and more the environmental and health scopes into infrastructure developments including transport.

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