

THE CHALLENGE OF AN INTELLIGENT COLLECTIVE TRANSPORTATION MODE ¹

(ENVIRONMENT-ORIENTED HUNGARIAN TRANSPORT POLICY)

Tamás Fleischer²

1. THE OFFICIAL HUNGARIAN TRANSPORT POLICY

- A Hungarian Transport Conception and Policy has been elaborated during the past two years involving about eighty different specialists. It is expected to be approved by the Hungarian Parliament in the near future.
- This transport policy selected one out of five outlined possible future political-economic scenarios for the country. namely *to join Europe in a successful way*. The means of transport policy are used to help reach this aim, focusing on four strategic directions.
- Parallel to the elaboration of the official document the need for an environment-oriented version has also emerged on the side of the Transport Ministry. In the following this latter version is going to be reviewed introducing some ideas of the document falling into line with the topic of the conference.

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² Institute for World Economics of the Hungarian Academy of Sciences, Budapest

2. ENVIRONMENT-ORIENTED TRANSPORT POLICY³

- The need for this type of policy emerged before May 1994 on the initiative of the Hungarian Ministry of Transport, Telecommunications and Water Management (KHVM).
- Its aim is: to focus on another possible future alternative (touched also by the `official` transport policy), namely to make the environment-oriented development a priority value.

3. WHAT IS DIFFERENT IN OUR VERSION?

- Different set of priority values (*environment-oriented view*)
- Longer historical background to aim at long term goals (*the role of structures and networks*)
- The evaluation of the way of thinking of decision-makers and transport planners was also considered as part of the evaluation of the present situation (*facing myths and mental patterns: see Table 1 in separate frame*)
- Focusing on the *social process* of creating a transport policy rather than considering transport policy as a *product* (*experts` debates in broadening circles*)

4. THE DIMENSIONS OF TRANSPORT

To establish the priorities of an environment-oriented transport policy we examined the phenomena in transport along different dimensions. These major dimensions concern the *regional structure*, the *determination by time scale*, the *aim of the service*, the *mass characteristics of the service* and the *transport mode*:

local/national-regional/international levels of transport,
distinction between *transit-* and *non-transit* traffic,

³ Magyar közlekedéspolitikai koncepció környezetorientált értékrendben. [=Environment-Oriented Hungarian Conception of Transport Policy]. "First onset" Representative on the part of the Hungarian Traffic Club is Lukács, András, expert coordinator Fleischer, Tamás. Magyar Közlekedési Klub, Budapest, 15 November, 1994..142 pages (with 250-pages background studies)

distinction between *freight-* and *passenger* transport,
 distinction between *individual* and *mass* transport,
 levels of *network/vehicle/traffic*

and only after analyzing the above dimensions can the traditional modal sub-grouping of transport, (i.e. *waterways/rail-/road transport/aviation*) be given along with their roles within an **intermodal** solution.

THE MYTHS OF TRADITIONAL TRANSPORT PLANNING	
1	The myth of mobility
2	The myth of time-saving
3	The myth of gaining space
4	The myth of the turn-table (crossroads)
5	The myth of transit
6	The myth of one-way streets
7	The myth of (the infrastructure of) joining Europe
8	The myth of increasing demands
9	The myth of little money
10	The myth of development missed
11	The myth of the radial-concentric system
12	The myth of underground solutions
13	The myth of freight ton/kilometer
14	The myths of `not giving up railway lines` and `uneconomic railway lines`
15	The myth of low cost water transport
16	The myth of low cost public transport

Table 1. Transport myths clustered into four units

In our review it was a guiding principle to introduce the historical tendencies of displacements within the different dimensions and to illustrate that the displacement regarded today as desirable, would rather need shifts right in the opposite direction as to the current tendencies.

The reviews of the most important dimensions are connected to the separate units of the above listed myths.

Unit 1: Short term advantages versus long term impossibilities

The common element of the first unit is the following: according to these myths the *'defeat'* of time and the *'overcoming'* of distance are values that justify the grounds for the present form of transport. Opposing to this statement, on the other hand, one can refer to the well-known social trap, the *'tragedy of the commons'*.⁴

The original example says that the farmer who lets an extra animal into the common overloading its feeding capacity has an individual advantage as if he did not do so: namely he obtains advantages at the expense of others. On the whole, though, the community is worse off, because the profit of the overloaded common decreases, especially in the long run. (negative-sum game)

A similarly clear-cut decision is made by an individual when he chooses the car: if he reaches his destination faster by car than by public transport he obviously chooses the car. But with such a decision in the short term we contribute to the deterioration of the momentary situation of transport in a settlement, while in the long term both individual and public transport will become dysfunctional: the conditions of transport change to a state where more and more people are *forced* to use their own cars, that is they will lose their chance to choose. (Local destinations lose their importance, the surroundings of residential streets become empty and to cover longer distances becomes a must.)

On the social level the time used for transport will not diminish. In fact it will even grow considerably regarding the additional activities connected with car use while the number of destinations will not change.⁵

⁴ Hardin, Garrett: The Tragedy of the Commons. Science, 162, 1968 and Hankiss Elemér: Társadalmi csapdák [=Social traps] Gyorsuló idő. Magvető, 1979. Budapest.

⁵ In *Unit 1.* among others we used many arguments of Hermann Knoflacher, including the denomination "myths". Knoflacher, Hermann: Zur Harmonie von Stadt und Verkehr. Freiheit vom Zwang zum Autofahren. Kulturstudien bei Böhlau. Böhlau Verlag Wien - Köln - Weimar 1993, 216 pages.

Unit 2: Transit versus non-transit traffic on local, national and international levels

The common element in all the myths of the second unit is the sharp distinction between *transit* and *non-transit* (origin and destination) section of traffic. In our analysis we crossed this dimension with the *local/national-regional/international* levels of transport.

A common tendency of the development of infrastructural networks is the gradual growth of their spatial extension. In the last century the construction of the public works, telephone, electric and gas networks all started with the aim of supplying the needs of *one building*, and this was followed by the extension of these networks to blocks or later to quarters. Inter-settlement networks became usual during between the two world wars and international ones only from the sixties. All these changes meant also steps in the improvement of technologies and transport capacities. In the case of the construction of surfaced roads and railway networks a similar interaction took place in terms of speed, vehicles and networks, making time to time a step forward in technology too.

While the improvement process followed the technically possible increasing speed, trips became longer and **more and more importance was attached to the intermediate, i.e. the transit section** compared to the beginning and ending parts of a trip. (*Table 2*). Both traffic-related and technological efforts were concentrated on improving the conditions of this intermediate section, providing an *industrialisable* level of *throughput* capacity, of speed and of continuous traffic flow. Of course, this fact in itself cannot be blamed, but in the meantime the circumstances developing at the origins and destination points of traffic lost importance and were downgraded.

	LOCAL	NATIONAL/REGIONAL	INTERNATIONAL
DESTINATION			
TRANSIT			

Table 2. Dominant traffic types moving from local to international transport

It is very important to underline that while the tendencies to modernize transport had as their main aims *to increase transit traffic, to develop new*

technological solutions and to build national and international (magistral) networks, today the environment-oriented (service-centered, post-industrial) set of priorities wants to **turn back** to the importance of the terminals, **to the priority of local goals, to meet the original causes of traffic demands and to display a holistic view of this service activity**. The high-level technical and operational solutions should find their places *within* the process of servicing remembering that the aim is to serve the needs of the everyday life at the endpoints and the above mentioned operational modes and technical solutions are but means for that.

A consistent representation of the priority of non-transit traffic change some traditionally accepted views about *local traffic conditions*. The beneficiaries of the new regulatory priority are, in turn, pedestrian traffic, bicycle traffic, surface public transport and any other non-transit traffic.

Principles to provide undisturbed transit traffic created the network of one-way streets, since here regulations improve the conditions of transit traffic at the cost of the local residents' comfort. Naturally we did not propose an immediate change of the present situation, but we could imagine some rearrangement when by re-formulating the regulations the interests of local residential groups get more and more attention. These groups still have to accept the fact that transit traffic cannot be totally eliminated in their area, since everybody becomes part of the transit traffic leaving his own street. (See Table 5 on page 176)

Unit 3: Quantitative development and the structural trap

The myths in this unit are related by the idea that the basis for them is a tendentious evaluation of the present situation that helps to have a *planned quantitative development* accepted.

We underlined how faulty it is to blame but the lack of outside conditions when the past failures of the sector are discussed, and also, to neglect a frank analysis of the consequences of those past investments that *were* financed. It can be shown that money was always *available* for politically justified investments and the result of this was a centralized and monopolized structure, disintegrating everything outside of the given political interests. Today a fundamental priority has to be that even the unfortunately small investments should try to *restructure* and not *reinforce* the already existing defective structures i.e. to avoid the existing structural trap.

The existing and future **networks** of transport determine the spatial structure for decades or even centuries. On such a time-scale economy has practically nothing to say and far from imagining the volume of future traffic we cannot even visualize the vehicles themselves of the future. Consequently, when improving a network much greater attention should be paid to geometry, topology and, generally, to those facts that *transport geography* can tell us about the importance of structures.

Speaking about urban networks we stated that though the **vehicle** and its driver is exposed to the network on the micro level, in the long run, however, it was the *aggressivity of the vehicles* that rearranged the traditional urban space so that cities first became less and less suitable to any other (not-transport) life-function, than earlier, while it has been proven by now, that it became unsuitable for massive automobile transport too.

Previously we have already referred to the typical 'social trap' syndrome of the whole phenomenon, where signs arriving to the micro level do not represent the facts developing on the macro level. Altogether we are not able to reach more destinations by car now, than before without cars, but those who do not have a car are in a much worse situation today. That is why **our goal is to 'steal back' the density of the destinations into the settlements**. This is what makes a 'postindustrial' city different from a 'modern' one.

The primary field of intervening into **traffic** is the expediter/dispatcher level where the immediate needs have to be met with the *given* network and vehicle fleet. Of course, the staff in an operational centre can also have opinion on the network problems. But these opinions serve as inputs rather to *analyze* the operation of the network and not proposals for direct development interventions. It is usually a mistake and indicates that network interactions are not systematically understood when one thinks that local problems are to be solved by *local network-improving actions*. It is absolutely sure that a traffic problem can only occur where *there is* a network so **in this way one can never become conscious of the possible structural deficiencies of the network**. It is again sure that **local interventions can only strengthen the existing structures** and instead of enabling a structural shift just make these changes more distant.

In spite of all these it is very difficult to make decision-makers change their mind about basing network developments always on (local) traffic problems. A reason for them to insist on their way of thinking is that it is always easier to get people to believe that an urgent problem needs urgent investment than to

find financial sources for *seemingly* not so urgent problems. Thus the usual circumstances of the struggle for financial sources are unfortunately favorable to *structure-conservative* investments. And this is something that can hardly be altered.

Unit 4: Quantitative indicators versus quality and services

In connection with this fourth unit we can make clear our view on the indispensable need of developing the quality rather than the quantity of transport services. We crossed two dimensions to analyze this problem: the dimension of *freight and passenger* transport and the dimension of *individual and mass* transport. *Table 3.* shows the relationship of these two dimensions.

	INDIVIDUAL	MASS
FREIGHT	disperse transports not indicated in statistics	organized freight transport
PASSENGER	individual transport	mass transport

Table 3. Freight/passenger.... individual/mass

Along both dimensions a shift characteristic to the past period and a declared priority opposing to the above tendency can be stated.

In the *individual/mass* dimension primarily in passenger transport it is well-known that the former modal split has changed in favor of individual car users (there is a difference in the extent of this change in Budapest, in other Hungarian cities and in intercity traffic).

Due to the recognition that the circumstances in transport are getting worse and worse, the slowing down of this process and a hardly hoped reversal of the modal shift is urged not only by environmentalists but also by the official transport experts.

A less analyzed substitution relation is that of the change in the *freight/passenger* dimension. The appearance of wholesale and discount depots and shopping centres free trading companies from the final and

troublesome phase of goods transport and shifts it over to the buyers who are, in this way, forced to perform the transport of the goods themselves.

Here, then, according to the statistics a shift is taking place from freight transport towards passenger transport. This is a fact, but however this is a more complicated situation, since freight transport has also been perfected but it has been shifted to an individual disperse category from a statistically proven mass and organized domain (a mass towards individual freight transport shift). Meanwhile passenger transport has in fact increased, moreover it has shifted from the potential domain of public transport to the category that needs individual car use (another shift of mass towards individual transport, but this time in passenger transport).

This example makes our task relatively clear since in this case to reverse these shifts into the direction of the priorities is obvious. If organizing freight transport services did not get stuck on the rationality level of *ton/kilometre* the obvious fact would become clear that if the final, disperse phase of freight transport could be organized that would offer a more economic and environment friendly solution than the present situation, when we can simultaneously mobilize all the shifts *against* the declared priorities. For that, it is necessary that the operators and organizers of transport see the process as a whole and also recognize the qualitative and individual needs beyond the quantitative performance *indicators* (ton/km, passenger/km).

It would fit to logistic organization theories to give priority to a *whole cycle* view, influencing by this the development of technology in a direction of aiming at the meeting of high quality demands in transport services, that is to serve in an organized way *such* expectations that now turn customers towards car use. Today, unfortunately, it is rather the *transit level* of processes that is a priority in logistics too and the uncomfortable details of organizing disperse non-transit traffic does not seem to be profitable enough. The same can be said about public transport, though several instances taken as prerequisites in freight transport are at hand here. These are: consignment units (passengers), distributing units (railway stations, bus and tram stops) and 'intelligent' load (passengers can read).

Our opinion is that the clue of solving the problem is not having the priority of re-establishing the former mass-centered view but a missing level should be included.

	special product special culture individual demand	mass product mass culture mass demand	rationaly orga- nized service satisfying indi- vidual demands
	INDIVIDUAL	MASS	INTELLIGENT
FREIGHT	disperse transports not indicated in statistics	organized freight transport	freight transport organized on the principles of logistics
PASSENGER	individual transport	mass transport	collective transport allowing for indi- vidual demands

Table 4 Freight/passenger.....individual/mass/intelligent

In *Table 4* we wanted to show that mass transport or mass freight transport are products of the same *homogenized quantitative* attitude as mass culture, mass consumption or mass demands, i.e. *mass* products. When we have a quantitative attitude individual demands usually seem to be uneconomical because the advantages they dispose with cannot be presented as an additive sum. The real evaluation of individual advantages can be manifested by the *willingness to pay*, i.e. by the fact that people are willing to pay for their individual demands even if it is regarded as uneconomical according to 'mass calculations'.

The term *intelligent* was chosen by us to cover the idea of the direction we see as the necessary one to be followed in transport. This, then, would be an *organized* satisfaction of individual demands. This would not at all mean low-cost public transport, but would be much cheaper and more economical also on the social level than individual car use. This latter, as it is well-known, is very expensive not only in its direct costs but also in the indirect, long-term results of forced and wasteful land use and in the environmental damages caused. An intelligent, organized transport and shipping activity would not mean a kind of degradation relative to the present system. It would use the technical innovations not for *deepening* the problems of increasing motorization, but for *solving* them. The task would just be the primary use of *software* solutions, that is organizational solutions and not the expensive *hardware*, i.e. constructional ones.

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When we drew together the guiding principles of traditional transport planning into units, we also used special terms for characterizing these units. Let us give a summary of these terms:

Unit 1	defeating, overcoming
Unit 2	industrializable
Unit 3	centralized, monopolized, disintegrated
Unit 4	quantitative, homogenized, mass demands

These terms characterize a modernization and industrialization period in a rather explicit way, and that of both the eastern, planned economy and the western capitalistic society type. We imagine the future, as a *post-modern, post-industrialized* period where the sets of values contrasted to the above ones are enforced consistently. A list of these preferable positive values can also be given:

Unit 1	smoothly adapting
Unit 2	servicing
Unit 3	restructured by local needs and values
Unit 4	qualitative, intelligent

The following summary of our proposals to change the system of transport comply to this desirable order of values. It is important, though, to call the attention to the fact that for the time being these proposals refer to the *outlines* of an integrated system. To elaborate these proposals a more explicit frame of the integrated, (intermodal, combined) transport system will be needed in the future. Such an integrated system can only serve as a basis for defining the roles of the different transport branches with regard to the existing and expected special features of the different transport modes. Up to now the starting phase of this longer process has been finished.

	ZONES	SPECIALY PROTECTED TRANSPORT ZONES	CENTRAL CITY ZONE AND CENTRAL PARTS OF OTHER DISTRICTS	HILLSIDE AND GREEN AREAS	ZONES NEXT TO CENTRAL CITY AND TO CENTRAL PARTS OF OTHER DISTRICTS	TRANSPORT CORRIDORS OF TRANSITIONAL MIXED ZONES	TRANSPORT CORRIDORS OF PERIPHERIAL ZONES
	MODES						
LOCAL TARGET TRAFFIC	PEDESTRIAN	development of pedestrian zones and corridors	development of pedestrian zones and sidewalks	"wooner" type development	development of pedestrian zones and sidewalks	development of lanes separated from main traffic	development of lanes separated from main traffic
	BICYCLE	development restrictions in pedestrian zones	development new regulation of traffic lanes	development new traffic priorities	development new regulation of traffic lanes	development of lanes separated from main traffic	development of lanes separated from main traffic
	PUBLIC TRANSPORT	restrictions differentiated by modes	development of in-zone services and access	environment friendly development of access possibilities	development of rail based and concentric links	development of rayon and concentric rapid transit and in-zone links	development of rayon and concentric rapid transit and in-zone links
	LOCAL TARGET CAR TRAFFIC	significant restrictions differentiated by cause space, time	speed limit restrictions differentiated in time	development bigger participation of local residents	development bigger participation of local residents	development P+R centres	development P+R centres
	LOCAL TARGET FREIGHT TRAFFIC AND LOADING	significant restrictions differentiated by weight space, time	restrictions by weight space, time more strict by daytime	significant restrictions more strict by night	development of regulation by weight, space, time restrictions	development of serving stocks and production	development of serving stocks and production
	PARKING	casualty prohibition, significant restrictions differentiated by cause space, time	significant restrictions differentiated by cause space, time	restrictions in public area, stimulating development in private parcel	restrictions on roads and sidewalks, development out of that	development of P+R system	development of P+R system and function of long term parking/ car-stocking
	TRANSIT CARS	prohibition	prohibition	significant restrictions, casualty prohibition	restrictions, reduction of the benefits of transit	restrictions excluding main traffic corridors	restrictions excluding main traffic corridors
	TRANSIT FREIGHT	prohibition	prohibition	prohibition	significant restrictions, casualty prohibition	restrictions excluding main traffic corridors	restrictions excluding main traffic corridors
TRANSIT							

Source: The main targets,... with significant modification²

Table 5. Zonal regulation of elements of the transport system

² The basic idea of the table has been borrowed from a report prepared for Budapest Transport Forum by Közlekedés Kft. (Budapest) and Főmterv Rt. (Budapest), titled "The main targets, strategic principals and most important tasks of the development of the transportation system of Budapest" (Budapest, August, 1994) Following the main idea of the frame, we have modified the order and the text written in the single cells.

5. SUMMARY

We have outlined some proposals regarded as basic principles of an environment-oriented transport policy. In the future greater attention should be paid to the needs of non-transit (local-target) traffic, and, in general, to the creation and causes of needs toward transport services. It is the *quality* of transport services that we want to emphasize instead of the importance of the technical and quantitative solutions in transit traffic. The *settlement* as a living space gets greater attention and transport should harmonically fit in with the everyday functions of life. One of the means of reaching this aim is to give more power to the local communities (neighborhoods) to intervene in the regulatory processes concerning their life directly.

Longer distances between destinations in cities that were enabled by increased car use can be gradually diminished in the above way and by this *walking, cycling*, the use of *trolleys* or *tricycles* could become more possible, and similarly *intelligent, publicly used transport* serving individual demands can also spread.

The solutions for the problems of transportation and traffic are not among the modes forcing the return to today's mass transportation based on *mass demands* but organized forms serving the *qualitative and individual needs* of public transportation should be found. This solution has to be compatible with a more compact type of settlement on the local level, moreover, it should help the formation of it. Public transportation in cities has to run mainly *on the surface* enjoying *there* priority against the rest of motorized transport. In the field of goods transport special and disperse demands also has to be served in an organized way. The view that the process of transportation has to be performed by transporters *interested in the service as a whole and not only in the optimization of certain parts of this process* should become the base of public transportation.

All these conditions can only be fulfilled if the monopolies of the single transport modes are divided, a common principle is formed how to use the existing network and the conditions for comparable intermodality are established. In this case the supply of both networks and vehicles will be controlled by the rules of market economy. By launching and operating this system it can be expected that the tendencies of future transportation will be formed by the system itself.

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