

# Modernization of Hungarian Rail Freight

Fendall Burian

In 1990, Hungary abandoned the Soviet-style political and economic system of more than 40 years to build one of Eastern Europe's most dynamically developing market economies. These complex changes have necessitated major market-oriented changes to the freight market by Hungarian State Railways (MÁV).

## Transformation of Freight Transport

During the transition period in the early 1990s, in some years, the amount of freight hauled by MÁV halved (Fig. 1). This explains the near halving of railway employees (57,000 employees in 1999) while the total route-km of MÁV practically remained unchanged. However, it must be remembered that Hungary is a relatively small country (93,030 km<sup>2</sup>) at the crossroads of some important European routes with a much smaller volume of internal rail freight transport than the volumes of international and transit freight (Fig. 2).

The contradictory situation of MÁV freight wagons is especially interesting. The massive decrease in freight volumes due to changes in the economic system led to an excess of wagons overall, but changes in the types of freight resulted in a simultaneous shortage of some specialized wagons.

Road and rail are the only real competitors for freight because Hungary is landlocked and the River Danube is the only international waterway. It is well known that the railways of the planned economies were heavily organized and subsidized by the state, so it is not really surprising that the structure of the MÁV wagon fleet was ill-suited to a market-oriented economy. In Hungary after 1990, much fewer bulk raw- and semi-processed materials were carried by rail freight while the quantity of smaller value-added finished goods increased. For

example, although Hungary is poor in minerals, in the Soviet era it had many coal-fired power stations and large steel plants, requiring large imports of coal and mineral ores from other planned economies. When the structure of

Hungarian industry changed radically after 1990, road freight managed the transformation better than railways, taking a larger share of the freight market as shown by the freight tonne-km carried by each transport mode.

Figure 1 Decrease in Freight Transport (1965–98)

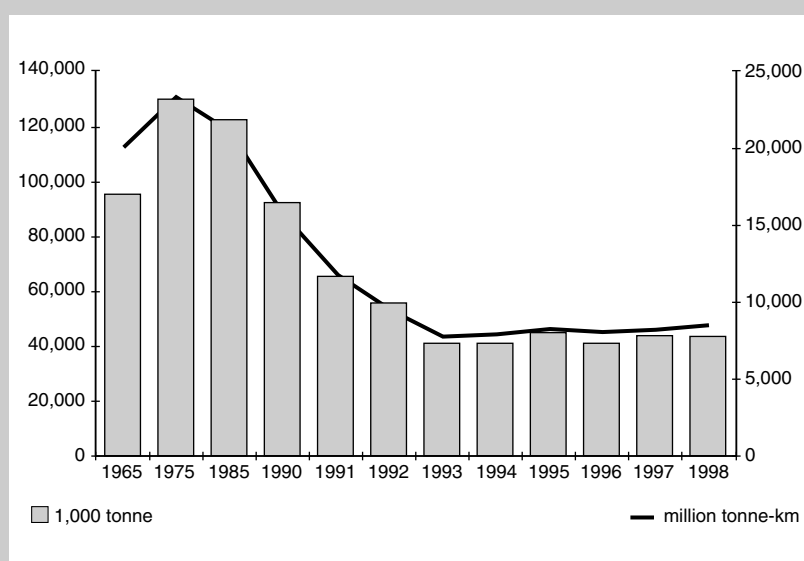
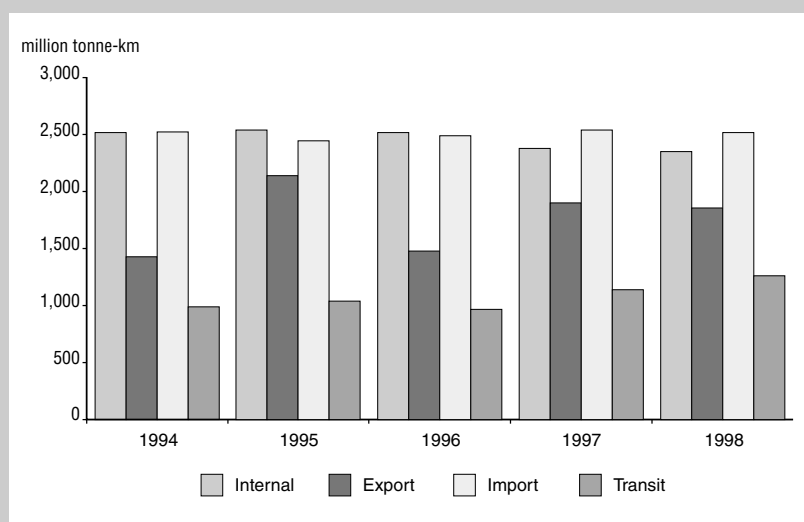


Figure 2 Percentages of Different Rail Transport Types



## Rail Freight Recovering Market Share

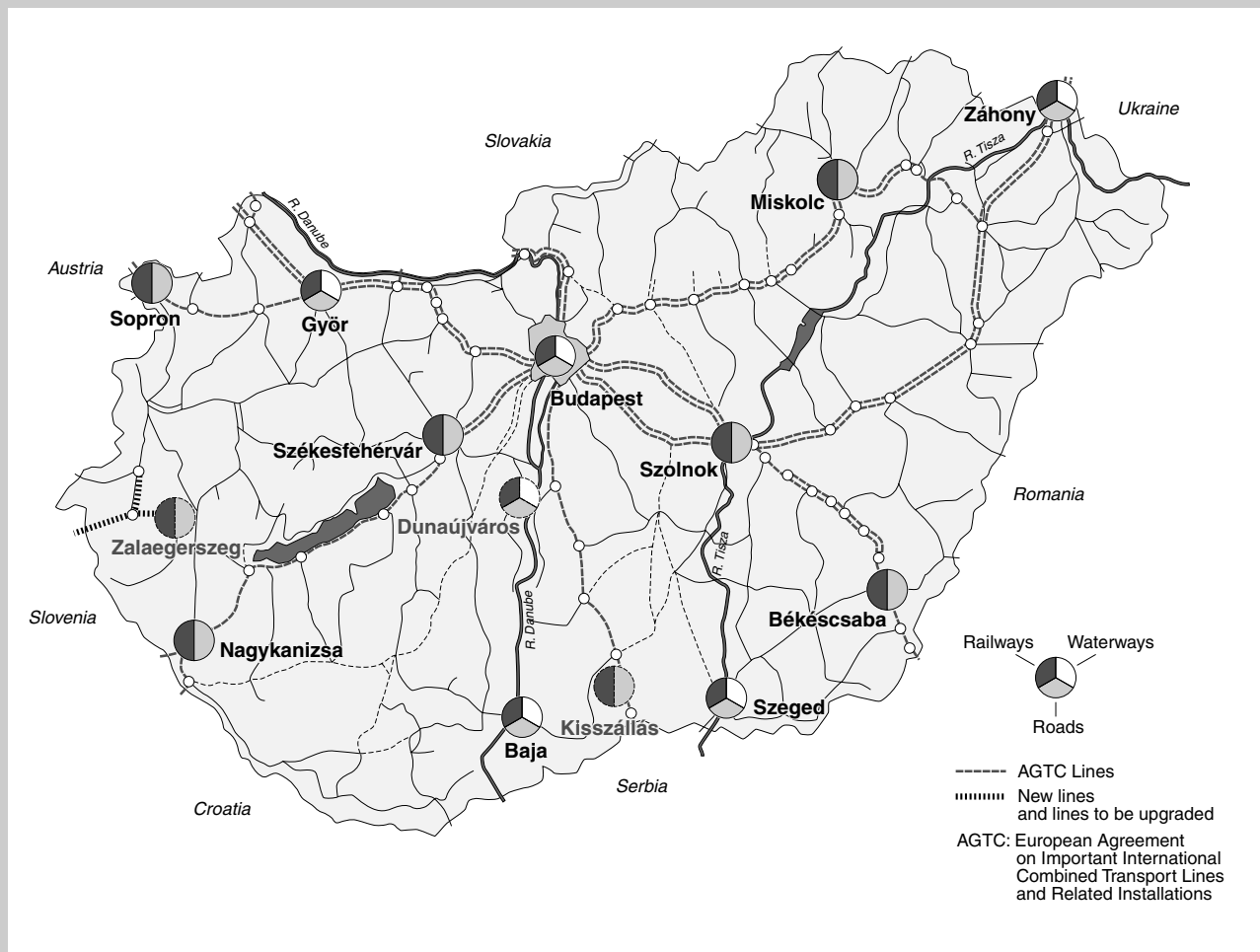
MÁV would like to recover some of its lost market share and is in the process of developing intermodal transport for this purpose. One approach is use of piggyback wagons to transfer heavy freight trucks to rail and alleviate road congestion and pollution. Development of a new wagon fleet will also have to take into account general economic growth and demand for increased and specialized services matching customer demand.

At the same time, the railway is undertaking radical reforms, including a change to a holding company formed of independent businesses each with a transparent financial system. At present, MÁV believes that an independent freight-only railway company may be able to compete more successfully with road freight than a massive railway administration with a lot of different activities. For example, it could become more efficient by closing low-traffic loss-making lines that have been kept in operation for other reasons.

## Present MÁV Wagon Fleet

A significant part of the MÁV fleet of freight wagons is traditional 2- and 4-axle open, covered and flat wagons of different sizes, capacities and ages. Although such wagons can carry almost any type of goods or materials, loading/unloading times are longer and require different specialized equipment. However, the current European market requires specialized dedicated wagons that can be loaded and unloaded quickly without

### Main International Freight Transport Corridors through Hungary and Development Programme for Combined Traffic Terminals

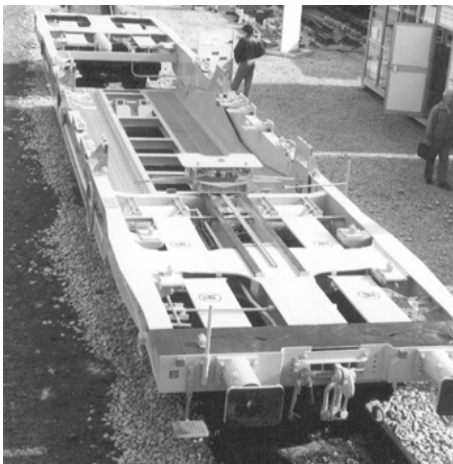




Old covered wagon (left) modified into sliding-wall wagon (right)



(MÁV)



Empty basket car with basket module (PÁRKÁNY)



Basket car loaded with 88-m<sup>3</sup> self-discharging modules for bulk materials

(PÁRKÁNY)



80-m<sup>3</sup> self-discharging wagon for bulk materials (cereals)

(MÁV)



Intermodal Ro-La wagon for piggyback transport

(MÁV)

## Comparison of Basket Wagon and Ro-La Wagon

	Basket Wagon	Ro-La Wagon
<b>General</b>		
Usage	Non-accompanied combined transport	Accompanied combined transport
Loading type	Vertical	Horizontal
<b>Financial</b>		
Purchase cost	\$75,000–90,000	\$140,000–170,000
Maintenance cost	\$2.5–3/100 km	\$8–9/100 km
Cost recovery term	5–7 years	16–20 years
<b>Technical</b>		
Construction	In accordance with UIC (European) standards Multipurpose: Any trailers different road vehicles, containers, swap-bodies, over-size	Not in accordance with UIC standards Single purpose: Road trains (cab + semi-trailer)
Max. load	68 tonnes	55 tonnes (including cab deadweight)
<b>Loading</b>		
Terminal	Container terminal with crane, access ways and storage area	Simple terminal with access ways and storage area
<b>Running</b>		
Use	Under international RIV regulations Single or grouped conventional trains, marshalled by normal methods	Only special routes Only self-grouped closed trains, marshalled only in terminal by special methods
<b>Availability</b>	98%	70%–75%
<b>Special conditions</b>		
Transporting drivers	None	Sleeping carriage
Logistics	Complex	Simple
Change-of-gauge loading	Normal container loading	Lorry wheels
Distribution from and to terminals	One cab + many semi-trailers	One cab + one semi-trailer

special equipment. MÁV is decreasing the overall number of wagons by 60% by eliminating both old worn-out and unreliable technically out-of-date wagons while increasing the number of specialized cars to meet demand. Recently, it has purchased the following specialized wagons:

- Self-discharging 75- and 80-m<sup>3</sup> bulk wagons
- Intermodal piggyback Ro-La wagons to carry truck cab + semi-trailer, and basket wagons to carry vertically loaded semitrailer
- Container wagons
- Self-discharging coal wagons
- Sliding-wall wagons
- Steel sheet-coil transporters

However, despite the downsizing, 83% of the fleet is still open, covered and flat wagons with just 12% specialized wagons. The number of tankers could be decreased to 5% based on present demand.

### Purchase of New Cars

To offset aging of the current wagon fleet, MÁV should be purchasing 550–600 new wagons each year, but new purchases in recent years number just 1392 or only 25% of requirements. The shortfall is due to lack of necessary capital, but MÁV has used its long experience in rolling stock engineering to recondition some old wagons into new special wagons at low cost as follows:

- Old flat wagons into container wagons
- Old covered wagons into sliding-wall wagons
- Old flat wagons into steel sheet-coil transporters

- Old open cars into wagons having new technical parameters

Due to the serious environmental concerns in Eastern Europe, some funds were allocated to purchase of piggyback wagons for carrying heavy road freight. Most notable are the so-called basket wagons patented in more than 20 countries. The basket wagon handles modular transport of different types of goods.

Despite making a good start, complete modernization of the MÁV wagon fleet will require continuing new purchases for at least another 5 years. MÁV's intention is to ensure that it has a modern restructured railway that includes freight transport meeting market needs. ■



### Fendall Burian

Mr Burian is a mechanical engineer and Director of PÁRKÁNY Ltd., a Hungarian engineering company holding patents on railway wagons developed by his team.