

**Support to the Government of Moldova  
for the Preparation of a Transport and Logistics Strategy**

**TECHNICAL REPORT – RAILWAY**

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**NOTE:**

**This report covers sectorial data collected and processed by the Project Team up to August 2012. The information presented herein has been compiled either from comprehensive research or from data provided by the relevant governmental and private institutions and agencies.**



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## **1. INTRODUCTION**

### **1.1. Historical Background**

Railway service exists on the territory of the current Moldova for more than 140 years. The first railroad was built in 1865 and connected Razdelnaya (Ukraine) with Cuciurgan. In 1867 it was extended to Tiraspol (current Transnistria region), and then in 1871 to Chisinau, the capital of Moldova. In 1875 the railroad traffic included a route to Ungheni. In order to ensure the military traffic, in November 1877 the railway section Bender – Galati was opened with a length of 305 km. This route was the railway link between Moldova and Romania, and also became a corridor to Danube River. The exploitation of Mogilev (Belarus) – Ocnita railroad started in 1893, traversing the Nistru River and continuing from Ocnita to Lipcani and Balti to Ocnita.

In 1914-1917, 416 kilometres of new lines were introduced. In 1920-1940 when Moldova was a part of Romania the principal network was readjusted to the 1,435 gauge. During the II World War the railway was in the midst of the military activities. The tracks on the main directions were three times re-adjusted between the two gauge standards. The whole system was badly damaged.

1946-1950 was the period of modernization. By 1950 the main parameters of the Moldovan railway fit the average soviet level. In 1953 the Moldovan railway was merged with the Odessa Railway under the name of Odessa-Chisinau railway. It served as an important link connecting the Soviet Union with the Balkan and South-European countries.

In 1991 the electrifying of the Cuciurgan (Ukraine) – Tiraspol – Bender section had begun but the activities were halted because of the Transnistria conflict. Currently only the Ukrainian part of this section is electrified.

In 1991 after the independent Republic of Moldova was proclaimed the CFM (Calea Ferată din Moldova – Moldovan Railways) was established as a national railway operator. In 2004 Transnistria had organized the “Transnistrian railway” enterprise using the Tiraspol, Bender and Ribnita stations and the railway lines leading eastwards to Ukraine via the transnistrian territory. This part of the system is not controlled and operated by CFM at the moment<sup>1</sup>.

There is no bilateral railway communication with Transnistrian stations at the moment. Only the transit through Transnistria is possible according to the triple agreement (Moldova, Ukraine, Transnistria).

### **1.2. Socio-economic Overview: Future Role of Railway in Moldova**

Converting the Moldovan railway system into a market-oriented industry operating as an effective part of the national transport-logistical network is a real challenge for the Moldovan Government.

The Moldovan railway system was created and developed, first of all, in the interests of the Soviet Union and the Soviet railways (MPS – Ministry of Railways) as a whole. The infrastructure served as one of the railway “portals” to the West. Main lines were laid with multiple crossings of the administrative border of Ukraine that was not at all the problem at that time. The inter-Moldovan rail freight transportation was at the very low level and was not developing for natural

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<sup>1</sup> Since August 2004 the Moldovan statistics, including rail transport, does not contain data related to Transnistria. This goes for the figures presented in this report as well.





reasons – Moldova is only about 350 kilometers from South to North (see Figure 1.1) The freight rolling stock had no allocation to the Moldovan railway since the level of operations centralization within MPS was nationwide. The locomotives served mostly the Moldovan territory because it remained the non-electrified part of the MPS infrastructure.

The long-haul passenger services were also a part of the MPS passenger system while the local trains played a significant role serving the transport needs of the population. All the passenger tariffs were state-regulated and the costs were internally cross-subsidized by the freight transportation profits.

All the cash flows and finance operations as well as the tariff-making process were centralized within MPS. As a result, the development programs and projects were actually financed by the central management of the MPS. Being the administrative part of the MPS system, Moldovan railway did not have its own economic, financial, technological policy.

After the independence of Moldova was declared, the situation changed dramatically. The CFM had become an independent railway enterprise that had inherited the fragment of the MPS assets and staff, as well as a large amount of social infrastructure. It is the only railway operator in the country responsible for railway infrastructure development and management as well as for freight and passenger railway transportation without any external assistance.

The Consultant believes that the principle problem at the moment is not the lack of resources as it is often declared by the Moldovan officials. The actual problem is an absence of coherent transport policy and clear priorities of the CFM as the national railway operator.

The widely announced intentions to make Moldovan railway network a part of international transit corridors for the cost of multimillion infrastructure projects seem not to be adequate to the natural goals of the social-economic development of the country.

The principal objective of any national transport system is to provide affordable and safe connection between industrial zones and populated areas of the country as well as to serve the goals of the international trade. In this context, Moldovan railways should produce affordable and reliable public transport services between the main points of the country to support the development of the Moldovan economy and the modernization of the society.

There are some obvious priorities that are clear by the current stage of the project as a result of the interviews and the documentation analysis.

There is no doubt that in the freight sector CFM has to serve the specific needs of the national exporters who send clear signals that their demand is not supplied properly at the moment.

The development of the Giurgiulesti port in the South seems to be one of the most important national transport projects. It cannot be considered successful without the effective railway link to the port.

Railway services could also represent an alternative to road transport attracting both freight and passenger traffic. That would have been very positive as well from the ecological point of view.

It is also clear that the railway passenger services are important for the country, first of all, in local transportation where people often have no reasonable alternative.



The declared intention to bring the national economy closer to the EC means that:

- i. The railway border procedures at the Romanian border should be as fast and effective as possible; and
- ii. The whole railway system should be intermodal-oriented including scheduled intermodal services as well as the up-to-date intermodal on-rail terminals.

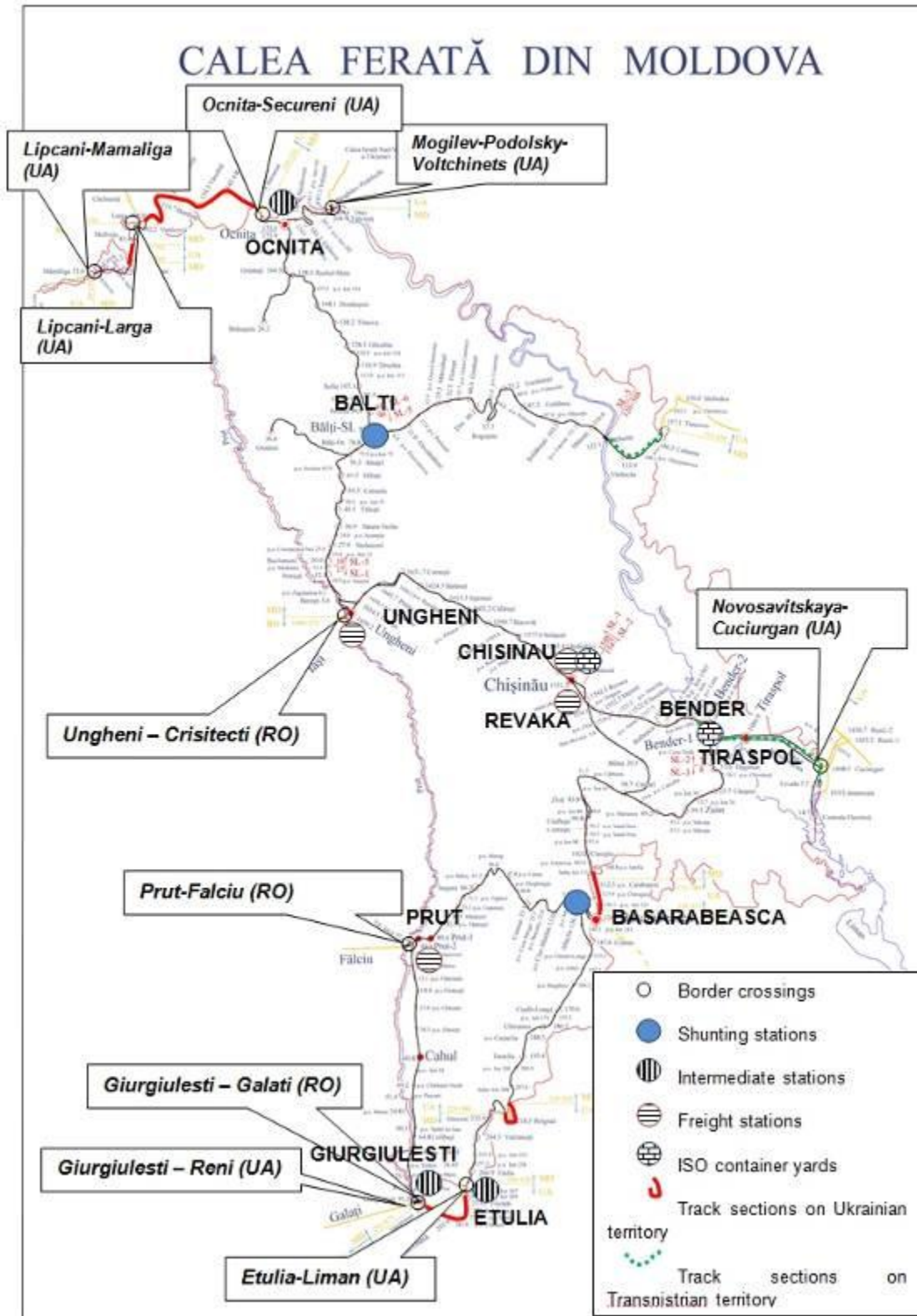
Unfortunately, most of the above mentioned issues are not on the agenda of the CFM development at the moment.

These issues are discussed in the current report as well as the corresponding investment projects that could be undertaken within the framework of the developed national transport policy of Moldova.





Figure 1.1. Moldovan Railway Network – Border-crossings



Source: Based on data from Moldovan Railway



## 2. INFRASTRUCTURE

### 2.1. Physical Description

At the moment the national railway system of Moldova (see figure 2.1) consists of 1,045.4 km of non-electrified main lines (about 40 km double-track) with 90 stations and 648.5 kilometers of station tracks. The gauge is 1,520 mm wide. Apart from this, 10.8 kilometers of the main tracks and 32.3 km of station tracks have 1,435 mm width - in the border-crossing areas in Ungheni and Giurgiulesti. The figures do not include the new Cahul – Giurgiulesti line (see below) that is not officially opened for operations.

422 km of lines are equipped with automatic locking system, which is in use for more than 35 years. 589 km of railway has the semiautomatic locking system with non-reliable electric air-wires. Numerous failures show the necessity of renovation.

80 stations and 1,660 track points are equipped with centralized control. There are still 9 stations with the manual control of switches and signals, where the control system design dates back to the 40-s. Among them is the Giurgiulesti station which is obviously to be developed and modernized.

There are 226 one-level crossings on the network, 37 of them – guarded. 181 crossing is equipped with automatic signals, 39 - with traffic barriers, 37 – with protecting railway signals. About 80 km of lines have no automatic control devices at all. Among them are the new-built sections Revaca – Cainari and Cahul – Giurgiulesti, where the traffic control is managed by telephone communication.

According to the CFM, 77.6% of the control systems are in critically bad condition. The same goes for the communication system which is in use since the 70-s and had not been renovated.

**Table 2.1. CFM Tracks Development, Million MDL<sup>2</sup>**

Investments	2005	2006	2007	2008	2009	2010
Tracks	112	25	136.2	317.8	42	8

Source: Moldovan Railway

The table above shows that the investments in tracks had decreased dramatically during last years. At the same time, two principal improvements in infrastructure had been undertaken during last 6 years:

- The 45 km line between Revaca (near Chisinau) and Cainari opened in 2005. This is a restored link between the RM's components of Corridor IX, CE-95 main line and E-560 main line. This link also avoids entering the Transnistria on the North-South direction;
- The 56 km Cahul – Giurgiulesti line – a railway access to the Giurgiulesti port complex in the mouth of Danube, located on the European Corridor VII. Opened in 2008 for technical exploitation (is not operated commercially yet).

According to CFM<sup>3</sup>, the Cahul-Giurgiulesti line built to serve the Giurgiulesti port is not in regular operation by now since there is neither signaling system nor communication lines along it.

<sup>2</sup> 1 EUR = 15.8 MDL (average for October, 2012)

<sup>3</sup> Interview with Mr. Alexander Zaika – Chief of the Technical Department of the CFM. 22/02/12



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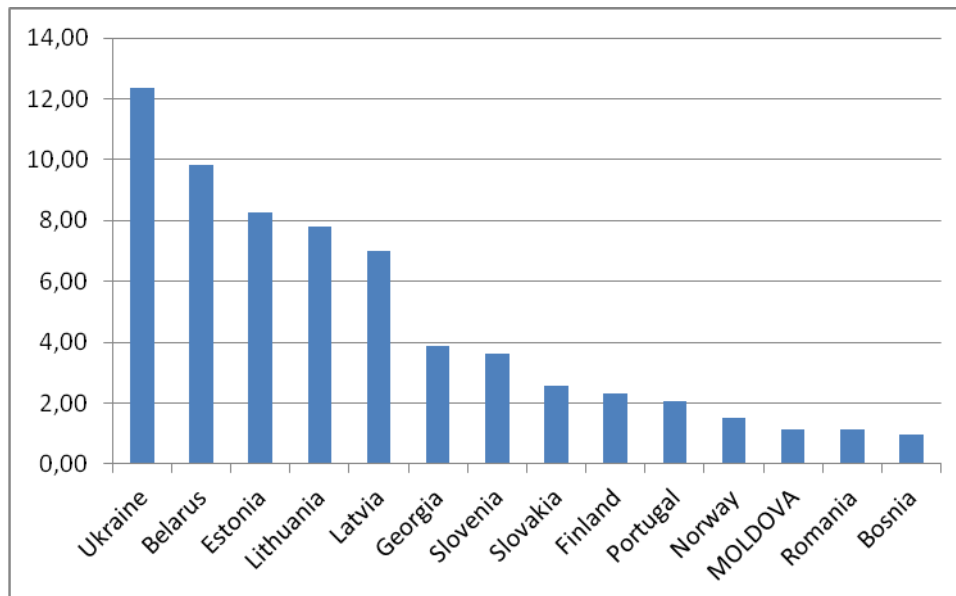
Also there is no necessary tracks development in the port zone. There are two problems about this line:

- The construction project was undertaken on the lands belonging to private owners without the appropriate land acquisition conducted. At the moment some of the landowners are in the position to protect their rights in the court;
- The railway line is vulnerable to flooding and needs extra investments to be protected properly.

Proposed and discussed are such plans as electrification of railroads or adjustment of the Chisinau-Ungheni section to the 1,435 track gauge or building the two new sections of the railroad to the border point Soroca to bypass the Transnistria, etc. (see section *Development plans* below).

Most of them seem to be too ambitious for the moment but show the proper understanding of the role of railways and general intention to improve the situation based on quite reasonable and modern approach. The level of infrastructure utilization is extremely low which is clearly visible in comparison with other railway systems (see Figure 2.1). Generally it gives a good possibility to optimize, modernize and rehabilitate the infrastructure and prepare it for future intensive use.

Figure 2.1. Traffic Density Benchmarking, TU per 1 km



Source: The Consultant

Traffic density is calculated as a total transport units (TU) production (sum of freight turnover and passenger turnover) divided by the total lines length.<sup>4</sup>

<sup>4</sup> In this case and hereinafter CFM parameters are compared with the corresponding figures of other 13 European countries' railways. Among them are the neighboring states - Ukraine and Romania - as well as Belarus, Bosnia, Estonia, Finland, Georgia, Latvia, Lithuania, Norway, Portugal, Slovakia and Slovenia. The chosen railways are on different levels of development and restructuring, but the main reason for the choice is the scale of the system. In particular cases (Fig. 4.2 and 4.3) the benchmarking is only done with non-restructured railways to make comparison reasonable. The data source used for the benchmarking is the UIC Railisa Database, all data for 2010 except for Georgia (2009).



## **2.2. Infrastructure Condition Assessment**

There are no weight limitations on the network. The standard axle load is 23.5 tones. There are no sections in critical conditions with menace to safety on the network. The standard train permitted by the track development is 57 units x 14 meters.

In spite of the comparable with the neighbouring states density of the railways (32 km of railway lines per 1,000 square km) the railway network is technically underdeveloped compared to the railway networks of Romania and Ukraine. The main signs of it are as follows:

- Lack of double track that decreases the capacity of the infrastructure;
- The system has no electrification which is the obstacle for development of transit operations and is a negative ecological factor;
- Most of the railway infrastructure does not allow reaching the design speed. The average technical speed is 34.5 km/h. In some places speed is limited because of small curves radius (down to 150 m).

According to the Ministry of Transport and Road Infrastructure, about 23% of the network or over 270 kilometres of track needs urgent repair. One of the principle reasons is the condition of the wooden slippers. About 460 thousand of them need replacement. The estimated financing is 27 million USD.

The railway infrastructure is not equipped properly to provide up-to date intermodal operations. The speed limitations are the obstacle for intermodal trains introducing. There are no modern terminals on the network that can effectively operate the ISO containers, controllers and swap bodies. The existing container yards are handling a limited amount of ISO containers along with small old fashioned containers 3 and 5 brut tones weight.

The CFM infrastructure is a system with a low traffic density and with enormous resources of general capacity. This is indirectly confirmed by the fact that the total volumes are decreasing gradually.

The principal problems related to the infrastructure can be summarized as follows:

- The neighbouring railways have different gauges and are electrified (CFM is not) which is a problem for transit;
- Some important sections and stations are located in Transnistria;
- The sections of North-South line, matching the main international corridors, are on the Ukrainian territory;
- The infrastructure is chronically underfinanced. The main reason is a very low traffic density.



### **3. ADMINISTRATION AND OPERATORS**

#### **3.1. Ministry of Transport and Roads Infrastructure**

The Ministry of Transport and Roads Infrastructure (MoTRI) is the central organ of public control, which develops and realizes the policy of state in the sphere of transport and road infrastructure.

According to the Decree 695 from 18.11.2009 of the Moldovan Government on the “Ministry of Transport and Roads Infrastructure Statement, its Structure and Staff number”, the main functions of the MoTRI are the following:

1. The introduction of the state policy for an improvement in the business environment in the sphere of responsibility;
2. Development, introduction and monitoring of development strategies in the sphere of responsibility;
3. A constant development and the renovation of the legal, analytical, decreeing, monitoring, technological and financial abilities of transport sector for purposes of the satisfaction of the requirements of other sectors of the national economy in so far as concerns of development and operation of transportation means;
4. Introduction and monitoring of the provisions of international agreements in the sphere of responsibility;
5. The creation of the mixed commissions and working groups, whose activity is governed by intergovernmental agreements and contracts in the sphere of transport and road infrastructure;
6. The development of the draft annual budget of Ministry and, if necessary, submitting the proposals for additional financing for the concrete actions; the control of budget funding use according to the designation.

The principal general credentials of the MoTRI are the following:

- Development of the national transport policy and strategies;
- Harmonization of the current transport policies with the requirements of the European integration process;
- Financial management in the transport sector;
- Establishing of state-owned enterprises and state property management in transport sector;
- Creation of the statistical database in transport sector;
- Develops the free market and free competition in transport industries;
- Initiates and leads the international talks on behalf of the Government in the sphere of responsibility, represents Republic of Moldova in the international organizations and agreements;
- Supports and consults the local authorities in the sphere of investment programs and specific regulations in the sphere of responsibility;
- Develops the programs and investment projects in the sphere of responsibility;
- Approves the investment projects of the national importance financed from the federal budget, local budgets, special funds and other sources;
- Undertakes measures for creation, development and operating the international transport corridors;
- Undertakes measures for fulfilment the obligations of Moldova within the relationships with the EU in the sphere of responsibility.





The specific functions of the MoTRI (regarding railway transport) are as follows:

- Develops the rules, procedures and, if necessary – routes for entrance/leaving and transit traffic;
- Develops the technological regulations and standardizing in the sphere of responsibility;
- Implements the national policy of the vehicle fleet development and modernization;
- Controls the fulfilment of the international agreements' provisions;
- Indicates the main principles of tariff policy, controls and approves the railway tariffs for freight and passengers transportation.

The MoTRI is headed by the Minister who has two deputy Ministers. One of the Deputy Ministers (Mr. Ciubuc) is responsible for the railway transport undertaking his responsibilities in this sector via the Administration of the surface transportation.

The structure of the MoTRI contains:

- Top Management (Minister and Deputy ministers)
- Cabinet of the Minister;
- The Administration of analysis, monitoring and policy evaluation;
- The Administration of international communication and European integration;
- Legal administration;
- Administration of the roads development;
- Administration of the roads maintenance;
- Administration of the surface transportation;
- Air transport service;
- Water transport service;
- Investigation service;
- Human resources service;
- Secretariat;
- Bookkeeping service;
- Internal audit service.

### **3.2. Legal Basis for Railway Operations**

The legal basis of the railway activities in Moldova, in spite of some changes and adaptations, generally dates back to the centralized-economy legal structure. The main legal instrument governing rail is the Rail Transport Code (nr. 309-XV from 17.07.2003). This document establishes the legal, organizational and economic activities of rail transportation and regulates the relations with the central government and local authorities and with other modes of transport.

According to this legislation, the railway is a public structure of state concern. Rail transport activities are regulated and controlled by the State. Transportation by rail is a natural monopoly, requiring special conditions for the development and operation of railway transport. Management, administration and the regulation of rail transport are performed by the central public authority responsible for transport — the Ministry of Transport and Road Infrastructure.

According to the Rail Transport Code, "The property of enterprises, organizations, establishments and units of rail transport, which directly ensure transport process and performing of reparative work, is exceptionally the public property. Sale, leasing or another similar real estate management without a change of the public ownership of this property are produced by railway enterprises by the agreement of the MoTRI according to the rules, established by the government".



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And, finally, “Objects and another property of rail transport, directly ensuring transport process and fulfilment of reparative works, cannot be subject to privatization. The privatization of enterprises, and also units and another property of rail transport, other from indicated above, is undertaken under certain time periods and conditions according to the order, determined by the current legislation” (All the citations are from the Rail Transport Code).

Under the Government decision no. 582/17.08.1995, the railways are considered natural monopoly due to their major contribution to the state’s economy, through exclusive rights of developing economic activities and controlling the activity in the area.

In other words, the law treats railway industry as a fully state-owned unit without any possibility for private participation.

The Code also regulates the relations between railways and forwarders, consignees of goods, passengers and other individuals and companies which benefit from rail services and establishes the basic conditions for the carriage of passengers, cargo and luggage.

The “under-law” legal act that develops and specifies the provisions of the Rail Transport Code is the “Regulation on the transport of passengers, luggage and goods by rail”. The modern version of this document had been prepared 4 years ago but it is still under examination in the MoTRI (according to the interview with Mr. Alexander Zaika – Chief of the Technical Department of the Moldovan Railway, from 22/02/12).

International transportation and transit through the Republic of Moldova of passengers, goods, luggage and express mail is carried out according to the provisions of the international treaties to which the Republic of Moldova is a party.

The foreign operators are not allowed to use the Moldovan rail infrastructure. Although within the commitments assumed by the Republic of Moldova during the World Trade Organization, the country promised to open railway transport services, it didn’t carry out this promise (according to Danescu Emil Ph.D. thesis: “Integration and Interoperability in Railway Transport sector in Europe. Application for Romania and Moldova”).

The general assessment shows that the legal framework in Moldova related to rail is currently not compatible with the EU approach as set forth in the three EU railway packages (according to Martin Horseling: “Law Approximation to EU Standards in the Republic of Moldova”).

It does not envisage the separation of the principal activities and enforces the legal regime that is not at all attractive for private business to enter the industry.

Back in 1999 CFM had elaborated a restructuring plan that envisaged three phases:

- Phase I (short term 1999-2000) - splitting passenger and freight services into self-contained business units, eradication of cross-subsidies, and establishment a special Governmental body for rail transport restructuring;
- Phase II (medium term) was to focus on commercialization, further elimination of subsidies, introduction of access charges and acknowledgement of competition.
- Phase III then would include competition and privatization. The infrastructure was to be shared with other providers and the passenger and freight services were to be set up as joint stock units (Source: “Moldova: Transport Strategy Update with Emphasis on the Road Sector”, World Bank Report, 2002).





This plan was supported in 2002 by the TACIS project “Moldovan railways restructuring” (Assessment of the Existing Plan and Approach Framework. TACIS project report prepared by NEI Consortium. March, 2002) has been developed giving the clear step-by-step strategies for the restructuring of the Moldovan railways system according to the EU requirements.

Actually some of the targets under Phase I have been met: some uneconomical lines and stations have been closed, some spur tracks have been handed over to the enterprises using them, and social services have been transferred to local authorities. At the same time, there is no visible progress in the fundamental restructuring issues. The CFM is still the state monopoly acting as a non-transparent single unit without possibilities for private entities participation or competition. The measures undertaken and projects proposed focus on infrastructure investments and technological improvements while the legal and institutional issues are left untouched.



## **4. MOLDOVAN RAILWAYS ENTERPRISE (CFM)**

### **4.1. General Description and Legal Position**

Moldovan Railways is the state enterprise established by the MoTRI. It is enlisted in a special appendix to the MoTRI statement among other ministry-established state enterprises (Decree of the Moldovan Government on the “Ministry of Transport and Road Infrastructure Statement, its Structure and Staff number” nr. 695, from 18.11.2009).

According to the Rail Transport Code of Moldova “The CFM is the leading enterprise of rail transport in the Republic of Moldova which governs the production, financial activity of the independent structural subdivisions, which are occupied by rail transportation, and coordinates the work of other enterprises, organizations and establishments of rail transport, which ensure its functioning”.

CFM operates on the entire territory of the country. The central industrial organ of public control (MoTRI) governs its activities”.

Although legally MoTRI is in charge of preparation of legal acts and other regulations concerning railway transportation, all the drafts are actually worked out by the CFM staff. The same goes for the tariff making: CFM is free in developing rates and tariffs that are just technically approved by the MoTRI.

All the business areas of CFM are controlled and financially managed “as a whole” with no legally and financially autonomous subsidiaries.

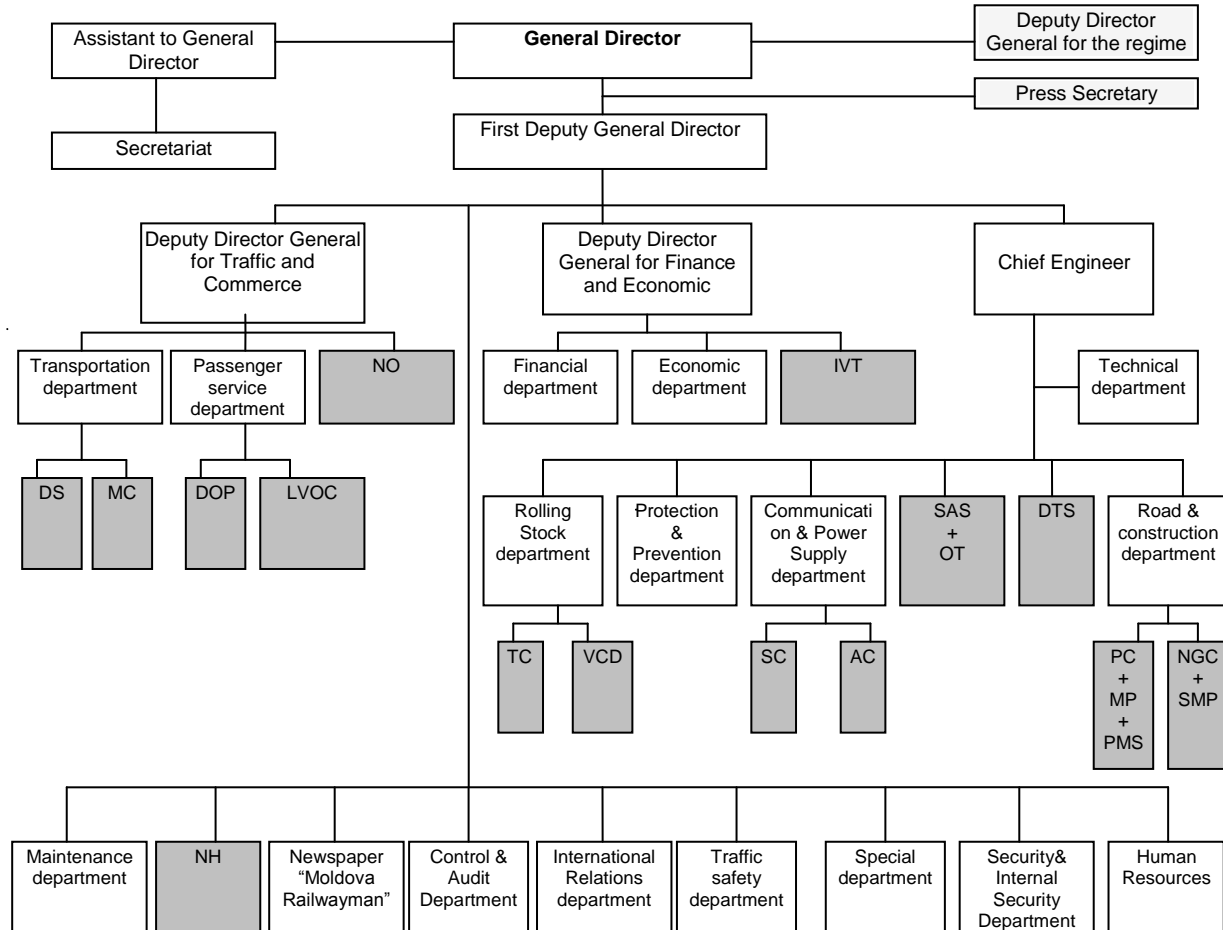
Recently (January 1, 2012) a new organizational structure had been introduced in the CFM (see Figure 4.1 and 4.2). The subsidiaries of CFM are shown in grey. The abbreviations are explained in Table 4.1.

The principal difference between the two structures is a step made in a new structure towards separation of the principal functional blocks of the railway – infrastructure, freight and passenger departments. This step should be by all means treated as a correct measure.

At the same time, until the assets and the accounts of the CFM are not separated as well according to the principal functions of the system, the necessary level of transparency and manageability will not be achieved.



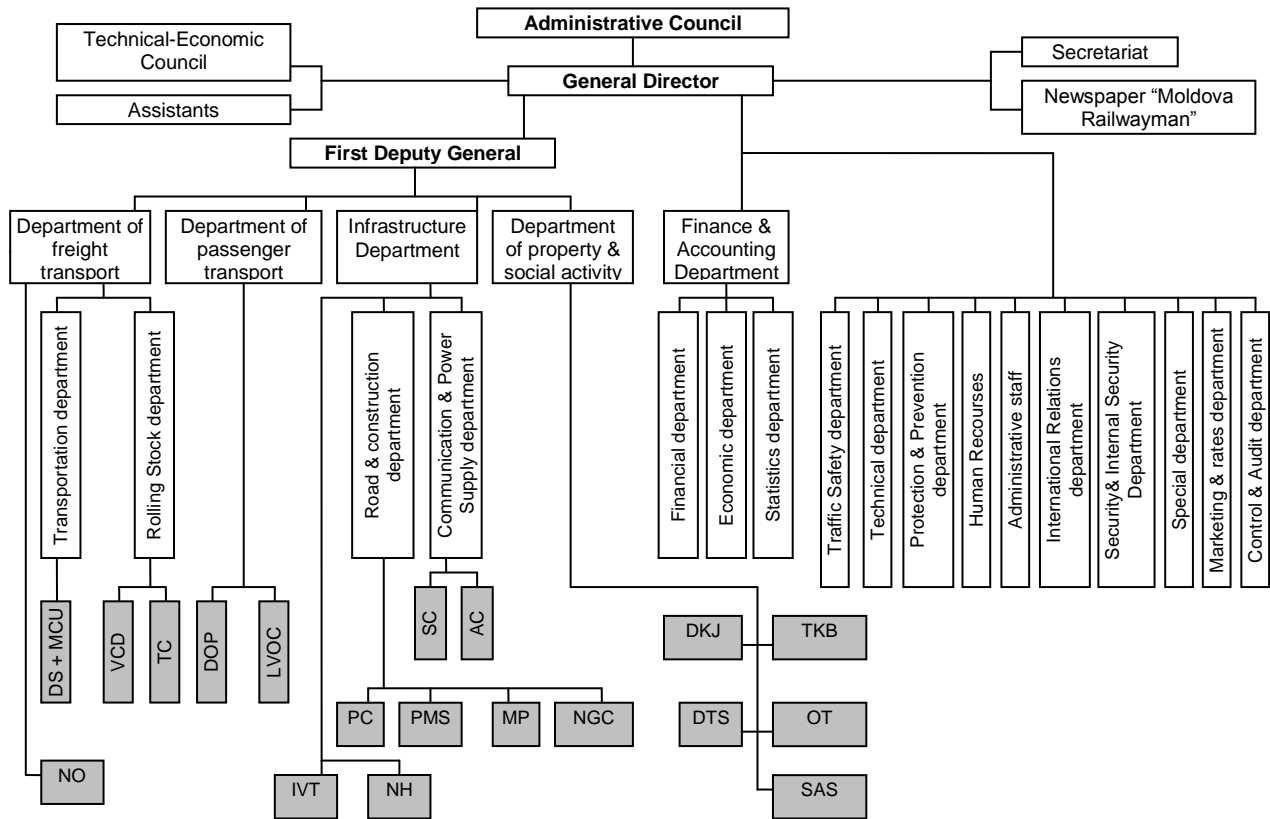
Figure 4.1. CFM Organizational Structure - 05.12.2011



Source: EBRD



**Figure 4.2. CFM Organizational Structure - 06.01.2012**



Source: EBRD

**Table 4.1. Moldovan Railway Subsidiaries' Abbreviations**

DS	Freight Railway Station
MCU	Sector of Loading and Unloading Works
NO	Paramilitary Guards
VCD	Wagon Depot
TC	Locomotive Depot
DOP	Directorate for Passenger Services
LVOC	Chisinau Passenger Railway Station
IVT	Information and Computing Centre
NH	Material and Technical Supplies Service
PC	Track Maintenance Division
PMS	Track Maintenance Train
MP	Bridge Construction Train
NGC	Civil Engineering Buildings Division
SC	Signaling and Communications Division
AC	Energy Supply Division
DKJ	The Palace of Culture of the Railway Workers
DTS	Railway Technical School
TKB	Central Clinical Hospital
OT	Health Rehabilitation Centre
SAS	Sanitary and Epidemiological Station



**4.2. CFM Staff**

In the recent time CFM had numerous changes in the headquarters. The current Director General - Administrator of the CFM Mr. Vitalie Struna had been appointed in November, 2011. He has the 15-years' experience in the Romanian railway industry and this appointment hopefully should be an important step to actual restructuring of the rail sector and to drive Moldovan Railways into efficient operations. At the moment CFM employs about 10,000 people. Table 4.2 shows the development of the CFM staff structure.

**Table 4.2. CFM Personnel Number, Structure and Wages**

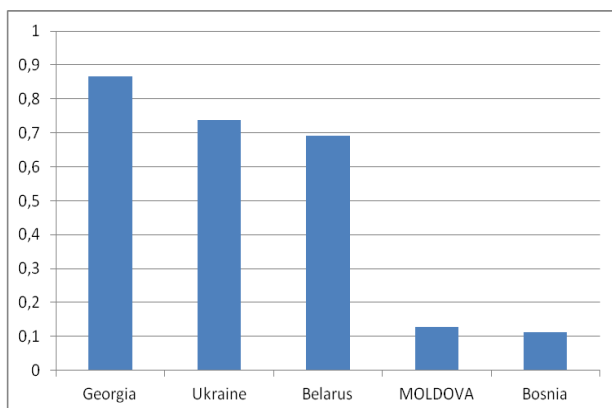
	2005	2008	2009	2010
Total number	14,064	13,168	10,031	10,393
Personnel number involved in:				
General management	473	435	296	288
Infrastructure	4,495	4,200	3,079	3,336
freight services	590	584	407	409
passenger services	2,719	2,456	2,047	2,077
Other	5,787	5,493	4,202	4,283
Average wages, MDL / USD monthly	1,782 / 162	2,975 / 270	2,790 / 253	2,832 / 257

Source: Moldovan Railways

To compare with, the average wage in Moldova in 2010 was 2,970 MDL (according to the Moldovan Bureau of Statistics). It means that the CFM wages level is about the national average. Figures 4.3 and 4.4 give the benchmarking data characterizing the staff productivity: personnel productivity, calculated as a TU production per one employee and number of employees per 1 km of tracks. The CFM figures are compared with the non-reformed “orthodox” railways. The figures show that the CFM personnel productivity is pretty low at the moment even among those. According to the available information the staff discipline is not perfect. There are numerous reported cases of motor fuel theft that made the CFM management to open a tendering procedure for an anti-theft system both for the fuel bases and the engines (Interview with Mr. Ciubuc - Deputy Minister of Transport and Road Infrastructure Moldova).

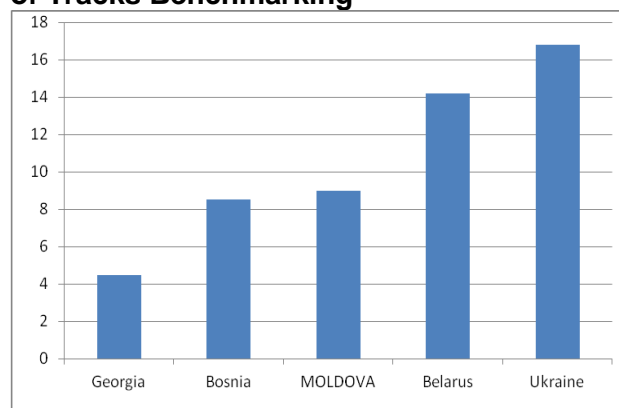
The Centre for Combating Economic Crimes and Corruption had disclosed the illegal activity of transporting passengers without “official ticketing” on international routes (Chisinau-Moscow, Chisinau-Bucharest) that caused the losses for CFM estimated over 2 mln. MDL (<http://bit.ly/A9aP5m>).

**Figure 4.3. TU per Employee Benchmarking**



Source: the Consultant

**Figure 4.4. Number of Employees per 1 km of Tracks Benchmarking**





#### 4.3. Rolling Stock

The CFM fleet had not been formed and developed according to the actual demand in transportation. In fact, CFM had inherited the mixture of rolling stock used on the former Soviet railway system. Table 4.3 contains the data concerning the current rolling stock fleet of the CFM.

The fleet was not systematically modernized since. Most of the engines in service do not meet the modern standards of emissions and are far from being economic when the energy consumption is considered.

According to CFM, the investments into new rolling stock both in freight and passenger segments are zero since 2005. At the same time, CFM is undertaking the constant repair and reconstruction of the rolling stock, in particular, of the diesel-trains.

The average age of the locomotives is 32 years, freight wagons – 34.5 years, passenger wagons – 22.5 years, passenger diesel-trains 26.5 years. Part of the rolling stock had passed through major overhaul for prolongation of the period of their operation.

There are no problems with rolling stock repair capacities. According to CFM repair services are even sold to foreign rolling stock owners. At the same time, the average age of the fleet is nearing its economic life, which makes it necessary to consider significant modernization investments for the next several years as well as a corresponding increase in the annual depreciation amounts.

There are no private fleet owners in Moldova. The whole CFM freight wagons fleet is a part of the so called “common CIS fleet”. According to the CIS railroads agreement, the wagons can be used by other CIS railroad administrations when abroad and unloaded. This leads to not reliable, unscheduled and inefficient rolling stock distribution processes in Moldova.

The undersupply of wagons restricts potential growth of rail transportation volumes, especially in peak demand seasons.

For instance, according to the CFM, the thermo-isolated wagons of the 918 series used for agricultural and food commodities transportation are in the reasonable amount in the fleet (more than 400 units). The main problem is the low availability of the wagons because they are used by other CIS railways on the basis of the “common fleet” agreement.

At the same time, CFM has about 30 refrigerated sections (RS) inherited from the soviet times. RS is the 5-wagons group with one machine cold-producing unit and the crew and 4 cars for refrigerated commodities. This fleet is out of use for years although this type of equipment is highly demanded in all the CIS countries.

Another “deficit” type of freight rolling stock in Moldova is gondolas, used first of all for metallurgic industry needs.

The existing fleet of containers belonging to the CFM is not in regular use. Now the possibility to use them to serve Giurgiulesti port is discussed.

Figure 4.5 gives the comparison of the freight wagon productivity with the corresponding figures to some foreign countries.



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The CFM wagon productivity is obviously very low, first of all, because the volumes transported under the operation of the foreign railways according to the CIS agreement are not considered. At the same time, the CFM officials say that the poor productivity measured in ton-kilometers is not a big problem since each wagon-day under such an operation brings the 20 Swiss Francs (about 250 MDL) revenue to the CFM.

One of the important problems is the renewal of the fleet of diesel-trains (DT) used for local transportation. CFM operates the Hungarian-made diesel trains Ganz-Mavag. Each DT consists of two motor wagons and two passenger wagons. The wagon capacity is 100 persons.

The first supply of this rolling stock dates back to 1981, the latest – to 1988. It was the year when the manufacturer stopped the production of this equipment. In the middle of the 90-s the production of spare parts was stopped as well.

The standard lifetime of the DT is 20 years. It means that all the fleet of the DT had exhausted its resource and should be replaced.

The poor technical condition and the lack of spare parts are leading to high operation costs. For instance, neither of the operated DT's can use the 3-rd (highest) gear in the transmission. As a result their speed cannot exceed 70 km per hour while the constructive maximal speed is 100 km per hour. The fuel consumption also is very high. To tackle the problem the CFM is developing the plans to partly modernize the existing DT fleet (8 units) and partly – replace the old units by the modern rail-buses.

In the beginning of 2012 the project for diesel-train modernization on the Romanian plant in Pascani had begun. The first modernized diesel-train is now in operation. It has the capacity of 267 passengers and the fuel consumption is 5 times lower than the old trains have. It is planned to modernize 14 more trains.

At the same time, the preliminary proposals had been submitted to the EBRD to purchase eight two-wagon rail-buses to replace eight old 4-wagon DTs. According to CFM, due to the higher speed of the rail-buses this substitution of 32 carriages by 16 of the same capacity will not influence the quality of services. The question is whether the existing infrastructure limitations (see above) will make possible the full speed operation of the rail-buses.

It is also planned to use the rail-buses for lease to private companies and persons for tourism and sightseeing. The official reason for that is the necessity to pay back the project investments that can be hardly achieved under the current passenger flows and payment discipline (about half of the passengers of local trains travel without tickets<sup>5</sup>).

Such plans, however, seem to somehow contradict the declared social importance of local and suburban passenger railway services.

Figure 4.6 gives the benchmarking for passenger wagon productivity. The corresponding indicator for CFM is pretty low.

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<sup>5</sup> Panorama Moldova. Interview with Alexander Zaika, chief of technical service of CFM (<http://pan.md/paper/Ekonomika/V-Moldove-poyavyatsya-avtobusi-na-relishah/18179>)



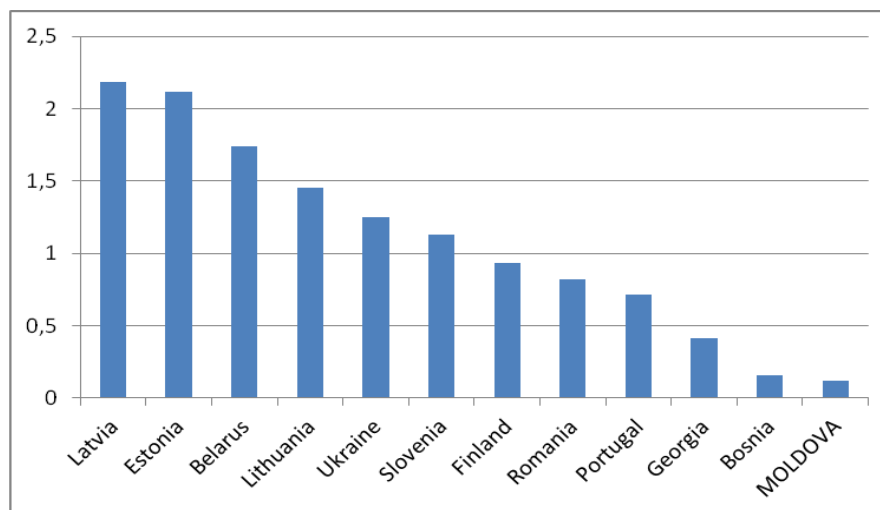


Table 4.3. The CFM Rolling Stock

	2005	2008	2009	2010
Locomotives number total	156	152	152	152
Including:				
Freight and passenger	86	83	83	83
Shutters	70	69	69	69
Freight cars total	8,318	7,921	7,919	7,835
Including:				
Gondolas	1,587	1,523	1,523	1,512
Boxcars	2,335	2,215	2,215	2,180
Conventional flatcars	740	577	573	573
Tankers	634	630	630	630
Hopper dozing wagons	102	102	102	102
Cement hoppers	278	252	252	252
Refrigerated wagons	502	418	408	408
Container flatcars	456	501	505	505
Other	2,520	2,558	2,570	2,532
Containers owned by railways, total	1,443	1,266	1,215	1,272
Including:				
3 and 5 tons brut weight	811	807	750	806
ISO	632	459	465	466
Tank-containers	128	128	128	128
Freight car loadings per year	5.75	8.54	4.38	3.30
Freight car loaded run per year, km	155.32	154.1	111.77	100.01
Freight car empty run per year	65.75	69.17	23.43	28.20
Freight car tons carried per year	1,987	2,482	722	846
Passenger cars total	440	399	423	411
Diesel units	25	25	27	26

Source: Moldovan Railways

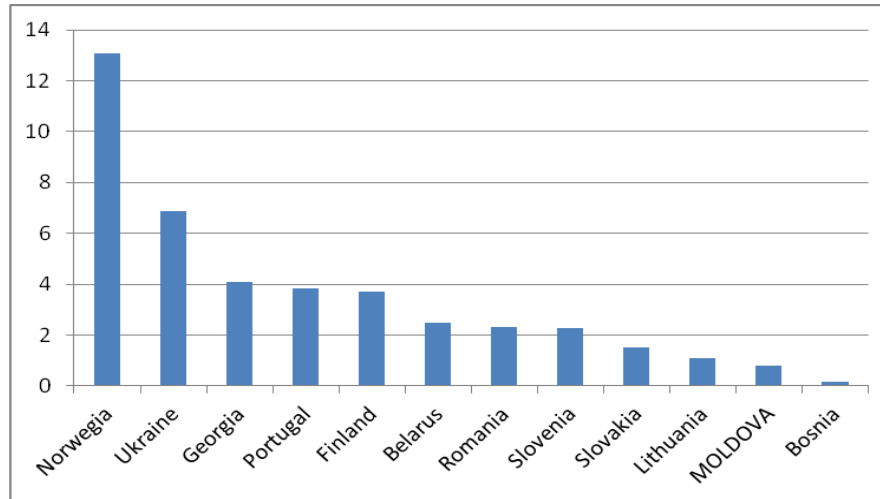
Figure 4.5. Freight Wagon Productivity Benchmarking, Million Ton-km per Year



Source: The Consultant



Figure 4.6. Passenger Wagon Productivity Benchmarking, Million Passenger-km per Year



Source: The Consultant

#### 4.4. Financing Mechanism

According to the Rail Transport Code of Moldova (nr. 309-XV from 17.07.2003), the financial and economic activity of enterprises and establishments of rail transport is based on the principles of government control and financial and economic self-management.

Building and reconstruction of the main railway lines of general use, of objects of mobilization designation and also the acquisition of railroad rolling stock relate to the state needs and are accomplished by means of budget funding and the own financial resources of railroads. Building and reconstruction of local railroad lines, local stations, pedestrian bridges, tunnels, passenger platforms, other railroad units serving the local population, the acquisition of trains for the suburban traffic can be financed by means of budget, of local budgets, as well as the own resources of the railroad and the voluntary contributions of organization and persons concerned.

The CFM receives neither direct state subsidies nor budget funding. The Cahul-Giurgiulesti line was constructed with the “indirect” financing after the state had increased its participation in the CFM assets. Table 4.4 shows the CFM investment development which is obviously poor.

One of the asset problems is the non-defined status of the CFM real estate in the Transnistria region, which were de facto seized and estranged. Such assets have been estimated by the Inter-ministerial Commission of the MoTRI from Republic of Moldova in 2005 with the amount of 583 million MDL.

Table 4.4. CFM Investments Development, Million MDL

Investments	2005	2006	2007	2008	2009	2010
Total	116.1	60	143.2	323.4	42.8	8.4
Tracks	112	25	136.2	317.8	42	8
Locomotives	0	0	0	0	0	0
Freight cars	0	0	0	0	0	0
Passenger cars	0	0	0	0	0	0
Other	4.1	35	10	5.6	0.8	0.4

Source: Moldovan Railways



The CFM has inherited the non-core assets like hospitals, kinder gardens and housing. This social infrastructure had been historically kept and financed by railways by internal subsidizing. At the moment it is step-by step transferred to the local authorities but cannot be done fast because of the lack of corresponding funding in the local budgets. Another real-estate management problem is that the property and land belonging to CFM are not properly registered yet.

In 2010 from the total number of 1,762 buildings of CFM subject to registration under cadastral territorial authorities, only 975 buildings or 55.3% were registered with obtaining the property title. For completion of the process for buildings registration CFM requires approx. 500 thousand MDL. The total area of the CFM land is 11.6 thousand ha including 228 ha occupied by the new railway Cahul-Giurgiulesti. Only the area of 802.2 ha or 7.65% of the total CFM land is registered with obtaining property title.

For completion of the land registrations CFM needs to allocate financial funds (based on the prices from 2009 approx. 28.3 million MDL) - according to the Plan of Actions to improve the situation at the S.E. Moldovan Railways under existing crisis conditions and to provide its restructuring for the next 5 years, approved on 8 April 2010 by the Ministry of Transport and Roads Infrastructure.



## 5. PASSENGER SERVICES

The railway passenger services are important for the country, first of all, in local and suburban communications where they often have no reasonable alternative for certain groups of population. This is confirmed by the stable high share of rail in the passenger transportation volumes (Figures 5.1, 5.2).

The local services are supplied by the trains equipped with intercity-type sitting wagons. The suburban services are carried out by the diesel-trains. The share of rail in passenger turnover is decreasing primarily due to international trips. Motorization, although growing rapidly, does not influence the demand for domestic rail services (Figure 5.3). Moldova is connected by long-haul passenger trains with Romania, Russia, and Ukraine. Long-haul international services are carried out via the territory of Transnistria due to corresponding agreement.

By the time of finalizing this report CFM failed to supply the Consultant with the information concerning the origin-destination passenger transportation. Figures 5.4 and 5.5 show the passenger trains traffic density by particular sections of the network calculated on the base of the passenger time-table published on the CFM web-site. The data is summarized in Table 5.3. Figure 5.6 shows the “passenger factor” benchmarking data. This indicator calculated as a passenger turnover divided by a sum of passenger and freight turnover (TU production) is used to characterize the share of passenger operations in the railway production and the possible influence of the scheduled passenger operations on the freight services.

In Moldova the level of the “passenger factor” is above the average level for the most compared railways but it can be explained, first of all, by very low volumes of freight operations. So, in spite of the social importance of passenger operations the CFM cannot be called a “passenger dominated railway” where the socially conditioned passenger operations prevent the development or limit the quality of freight services.

The local and suburban passenger operations are provided on the basis of state-regulated tariffs and are internally cross-subsidized within CFM by the freight revenues. This is evidenced by stable passenger social-oriented tariffs for the last 15 years, while the freight rates were increased two times in 2010.

To cut down the costs in local and suburban traffic, the CFM is undertaking now the program to modernize the rolling stock (see the *Rolling stock* section) and also to optimize the routes and schedules.

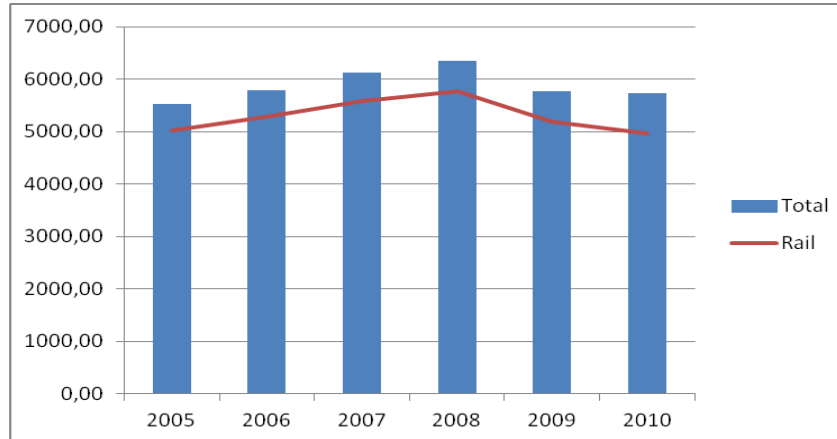
The analysis of costs and revenue rates for passenger services (Figures 5.7, 5.8, Table 5.4) shows the following:

- Because of state regulation the tariffs, as it can be expected, have no clear connection to costs;
- There is no visible correlation between the revenue rate for domestic services and the general situation on the consumer market. In 2010 when the consumer services price index was about 10% growth the revenue rate in the passenger regulated tariffs zone was about – 10%.

The simple analysis also shows that the international passenger services, according to the CFM data, are not profitable and are generating losses more than the local operations. The main conclusion from that is: either CFM is not properly controlling the economic data or it is not in the position to show the actual situation to the Consultant.



Figure 5.1. Railway Passenger Volumes Transported in Moldova, Thousand Passengers



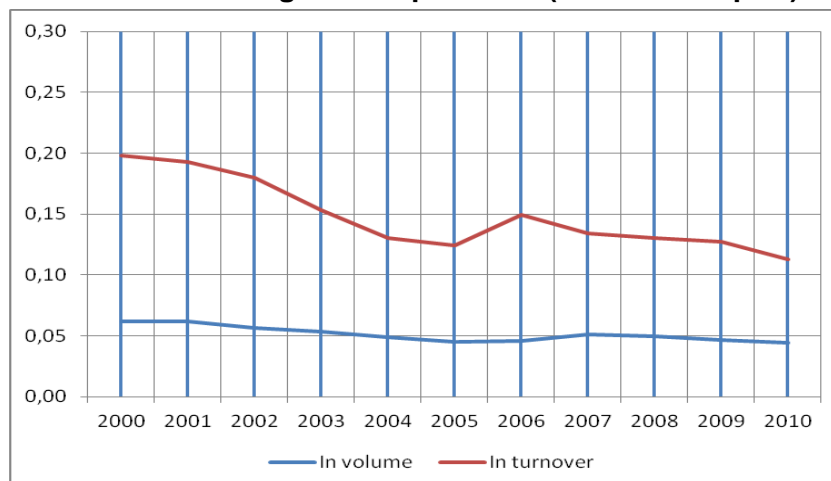
Source: The Consultant

Table 5.1. Passenger Operations, All Modes, 2003-2010

	2003	2004	2005	2006	2007	2008	2009	2010
Passengers transported, thousand								
TOTAL	99,030.3	104,848.4	111,176.2	115,187.8	109,308.5	116,628.0	111,570.8	111,697.0
railway	5,281.60	5,110.90	5,024.10	5,283.90	5,590.50	5,762.90	5,186.70	4,963.70
river	103.80	134.30	134.80	102.70	119.20	105.00	118.70	118.80
air	249.20	307.80	361.70	396.60	415.20	473.90	459.60	649.20
Bus and coach	93,395.7	99,295.4	105,655.6	109,404.6	103,183.6	110,286.2	105,805.8	105,965.3
Passenger turnover, mln. P-km								
TOTAL	2,296.63	2,660.82	2,853.73	3,158.61	3,493.54	3,722.21	3,326.94	3,543.74
railway	351.90	346.10	355.00	471.40	468.20	485.60	422.80	398.90
river	0.33	0.42	0.33	0.21	0.24	0.21	0.24	0.24
air	304.30	365.10	439.70	480.90	549.60	637.50	603.80	750.80
Bus and coach	1,640.1	1,949.2	2,058.7	2,206.1	2,475.5	2,598.9	2,300.1	2,393.8

Source: Moldovan Statistics Bureau: <http://www.statistica.md/>

Figure 5.2. Share of Rail in Passenger Transportation (Public Transport)



Source: The Consultant

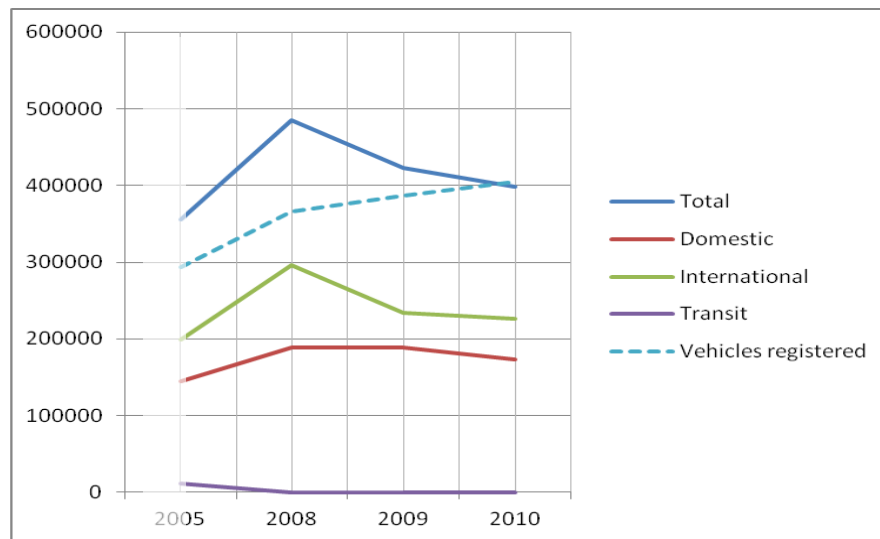


**Table 5.2. CFM Passenger Operations by Types of Services**

Passenger transportation	2005	2008	2009	2010
<b>Total</b>				
Passengers carried, persons	5,024,116	5,762,924	5,186,682	4,963,674
Passenger-km, thousand pers-km	355,015	485,577	422,793	398,857
<b>Domestic</b>				
Passengers carried persons	3,213,475	4,067,843	3,803,066	3,606,408
Passenger-km thousand pers-km	145,235	189,030	188,425	173,167
<b>International</b>				
Passengers carried persons	1,717,776	1,690,670	1,379,789	1,355,060
Passenger-km, thousand pers-km	198,891	296,234	234,058	225,621
<b>Transit</b>				
Passengers carried persons	92,865	4,411	3,827	2,206
Passenger-km thousand pers-km	10,889	313	310	69

Source: Moldova Railway

**Figure 5.3. Railway Passenger Turnover (Thousands pass-km) and Cars Registered Number (Vehicles)**

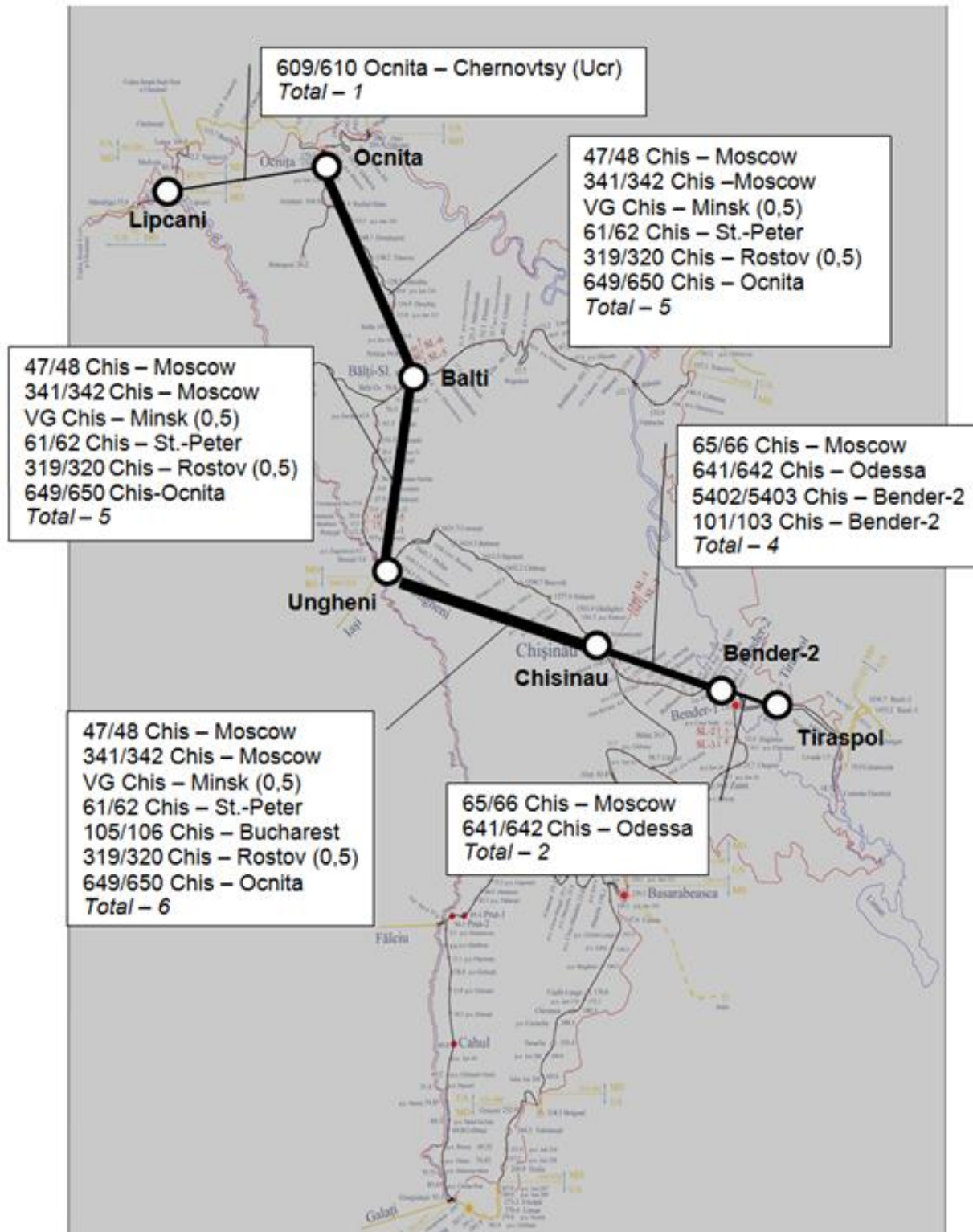


Source: The Consultant





Figure 5.4. Passenger International and Intercity Local Trains Density (Figures before the Origin-Destination are the Train Number (0,5) means that the Train goes once in two Days. Total is a Number of Couple of Trains per Day by Sections)

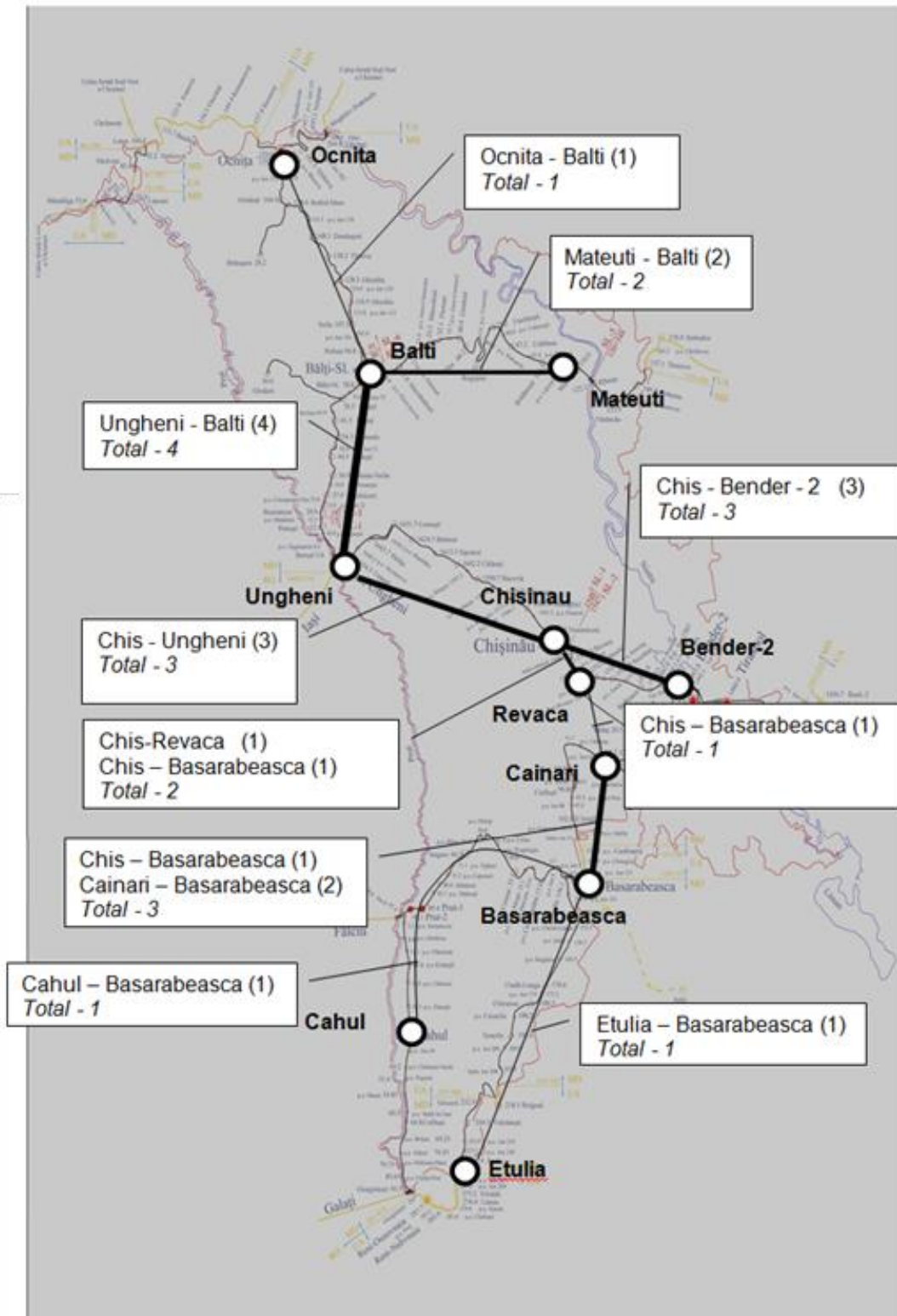


Source: Calculation on the base of Moldova Railway (CFM) time-table (<http://www.railway.md>)





Figure 5.5. Passenger Suburban Trains (Diesel-Trains) Density (Figures show the Number of Couple of Trains per Day for Particular Section)



Source: Calculation on the base of Moldova Railway (CFM) time-table (<http://www.railway.md>)

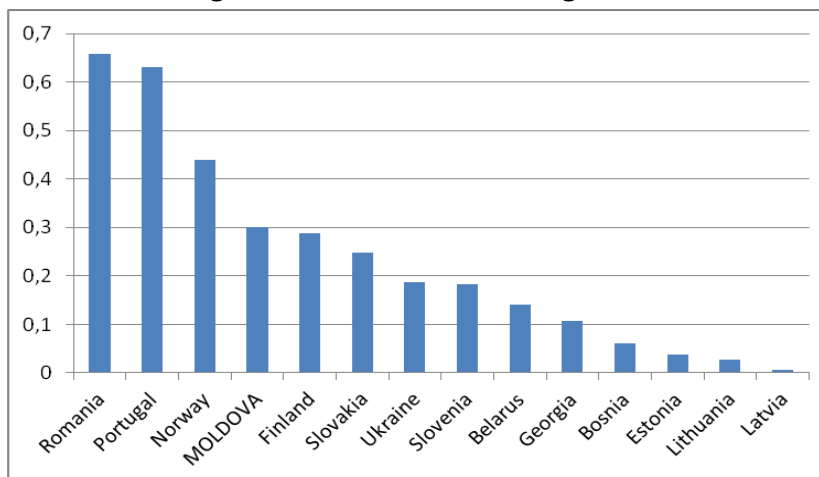


Table 5.3. Passenger Trains Density by Main Sections of the Network, Couple of Trains/Day

Section	Passenger long-haul and intercity local trains	Passenger suburban trains (diesel trains)	Total
Chisinau - Ungheni	6	3	9
Ungheni - Balti	5	4	9
Balti - Ocnita	5	1	6
Ocnita - Lipcani	1	-	1
Balti - Mateuti	-	2	2
Chisinau – Bender-2	4	3	7
Bender-2 - Tiraspol	2	-	2
Chisinau - Revaca	-	2	2
Revaca - Cainari	-	1	1
Cainari - Basarabeasca	-	3	3
Basarabeasca - Cahul	-	1	1
Basarabeasca - Etulia	-	1	1

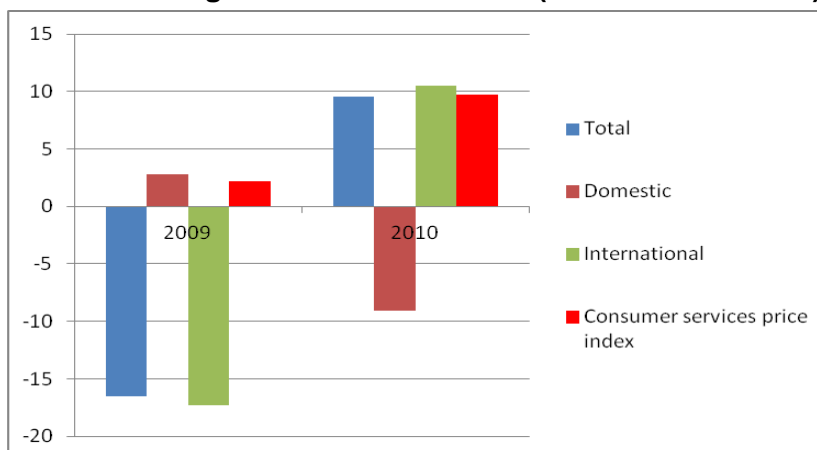
Source: The Consultant

Figure 5.6. “Passenger Factor” Benchmarking



Source: The Consultant

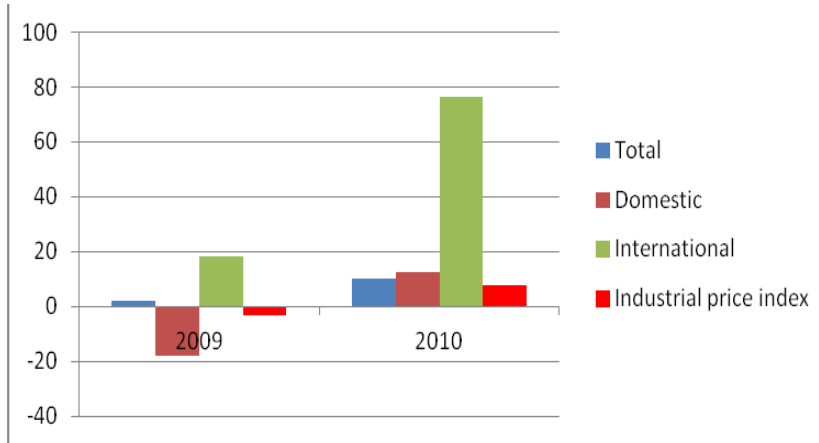
Figure 5.7. Passenger Price Rates Growth (% to Previous Year)



Source: Based on the CFM data



Figure 5.8. Passenger Costs per Pkm Growth (% to Previous Year)



Source: Based on the CFM data

Table 5.4. CFM – Passenger Economics Analysis, 2010

	Turnover	Revenue	Rev/Pkm	Costs/Pkm	Total costs	Result
	Mio Pkm	Mio MDL	MDL/Pkm	MDL/Pkm	Mio MDL	Mio MDL
Domestic	173	10	0.057803	0.804	139.092	-129.092
International	225	225.5	1.00	1.836	412.8	-187.3

Source: Calculated on the base of CFM submitted data

### Rail-Road Competition in the Passenger Sector

One of the sensitive issues of the state transportation policy in the passenger sector is the optimal trade-off\* between the railway services and coach (bus and micro-bus) services especially on competitive destinations to existing rail services or infrastructure.

Open unlimited competition on this market segment makes sense only on condition that both the railway and coach services are delivered by profit-making businesses and passengers can afford the actual market rates for both services and make their choice comparing the price and quality on particular routes.

But usually this condition is not fulfilled. Normally the railway services are provided under the regulated socially-acceptable rates and are subsidized by the government. The subsidizing can be either direct (if the passenger railway company is a separate business-unit operating under the clear agreement with the government) or indirect (if the actual or declared losses generated by passenger transportation are internally cross-subsidized within the railway enterprise according to written or unwritten agreement with the government).

The latter option is the case of many countries including Moldova.

In this case, if the coach business is allowed to develop freely, most payable passengers will shift to coach services thus increasing the necessary subsidizing of rail – that does not make sense economically. So the duty of the government is to apply the proper regulatory scheme.



Within this scheme the following principal decisions are possible:

- Keeping only one mode on this whole segment if the services are acceptable by price and quality and the subsidizing (if necessary) is at reasonable level. This is a well-known practice of many countries trying to support their railways. But it does not mean that under particular circumstances coach services cannot become the full substitution of rail (coach operators can be subsidized as well to keep the tariffs on the necessary level);
- Distributing all the routes between rail and coach keeping only one mode services on each particular route;
- Serving most of the routes with one only mode while on some particular routes rail and coach can work in parallel. This is possible if the capacity of one mode is not enough to fulfill the demand or if the service quality of one of the modes is that higher that in fact it is a different price-quality segment.

Whatever decision is taken, it should be based on some intellectual ground and needs data for evaluations, in particular:

- Passenger flows on particular routes;
- Payability of passengers structured by groups;
- Actual costs of services allocated to particular routes.

The passenger flows and the payability breakdown data is necessary to know the capacity distribution and the estimated revenues on particular routes. This information should be obtained by means of passenger surveys organized by the transport authorities.

Knowing the costs is critical to understand what rates could be offered by carriers and what will be the subsidizing if necessary. The case of coach costs is simple enough because the cost structure and the cost elements are generally well-known and can be easily calculated for particular type of coach and particular route.

The case of rail, on the contrary, is complicated since the correct allocation of costs in railway operations is a very uneasy task - even if the railway enterprise is well structured, business-oriented and cost-transparent. If the railway is a “monolith” pre-reform type (like in Moldova at the moment) this task becomes a problem with numerous unknown and unpredictable factors.

The main conclusions that can be made from the above said are the following:

- 1) Moldovan Government will act unwise if the open market for coach services is introduced. The regulation is needed that should envisage route identification and licensing procedure considering the intermodal competition factor as well as the social impact;
- 2) The best results in regulating this specific market sector can be obtained after the railway passenger company (or, initially, the railway company subdivision with clear cash flows) will be established in the course of the railway reform;
- 3) In any case, the establishing of such a regulatory system can be a part of a special research study or consultancy project.



## 6. FREIGHT SERVICES

In general CFM is losing its market in freight transportation, mostly, in favour of road transport, which is typical for all the transition economies. The share of railways in the freight turnover had decreased from 59% in 2006 to 23% in 2010.

The development of CFM freight volumes is illustrated by table 6.1 and figure 6.1.

For a long time the important share of rail freight was the transit of metallurgic raw materials from Russia and Ukraine to Romania (Arcelor Mittal Steel Plant in Galati - about 200 cars daily). This flow produced about 40% of CFM freight revenues.

Freight transit used to be the main revenue source for years but now it is nearly inexistent. A large amount of this flow had shifted to water transport. There are several competing waterways to Galati: from Ismail (Ukraine), Constanta (Romania), Burgas (Bulgaria) served by Romanian and Ukrainian companies.

The main reason, apart from the financial crisis influence on demand, is the unwise tariff policy (see Figure 6.5).

In the freight transit sector Moldova is within the agreements of the OSZD (Organization for Cooperation of Railways) countries which prescribe the recommended freight rates for transit through the national territories of the OSZD countries. Although Moldova can introduce discounts to those rates the lack of actual costs monitoring blocks the implementation of the smart market-oriented tariff policy. The problem is also that the rail transit attractiveness on this route depends also on the rail tariff policy of other countries (tariff policy is described in section 7).

CFM is not the only transit bridge in the region. Other railway and waterway option exist, so the transit rates should be changed very carefully.

Traditionally the main commodities transported by CFM were mineral solid fuels, iron ores, building materials. The analysis of the commodity structure (Figure 6.6) shows that recently the share of mineral fuels, ores and building materials had diminished which is mostly the result of the economic crisis (the markets had fallen down and many customers had decreased their production or frozen some projects).

At the same time, the amount of oil products had increased (which is probably a result of motorization) as well as fertilizers, seeds, fruits which are connected to the general growth in the agricultural sector of national economy.

The CFM uses the old-type 3 and 5 ton containers. The fleet of ISO containers is not in regular use and the intermodal services are not developed.

2011 showed the increase of volumes. In January-November 2011 (available statistical period) enterprises of railway, road, river and air transport, have transported 9,124.0 thousand tons of goods, with 19.5% more than in the corresponding period of the previous year. The turnover of goods summed up 3,276.7 mio tone-km, with 14.0% more than in January - November 2010.

The important problem in the freight sector is the lack of the rolling stock (see section *Rolling Stock* above).



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Since the end of October 2011 CFM had not enough supply of wagons for agricultural and wine-production for export. In October it was necessary to provide 240 railroad cars including canned foods - 125 cars, wine - 115 railroad cars. Actually were loaded 171 cars including canned foods - 76 cars, wine - 95 cars. In November the demand was 380 cars including 220 for canned foods and 160 for wine. Actually loaded were 62 cars (canned foods – 13, wine - 49 cars).

CFM on its official site announces that in principle there is enough rolling stock for these demands on the CFM inventory – about 700 units. At the same time, 620 wagons during the period of the peak demand were on the territories of Russia (275 wagons), Kazakhstan (155), Ukraine (105), Uzbekistan (55), other countries (90) used by the railway administrations of the corresponding countries. CFM had undertaken the measures to call back the rolling stock that gave no result. CFM announced that it addressed the Government for assistance in this issue (Source: CFM official website <http://www.railway.md>).

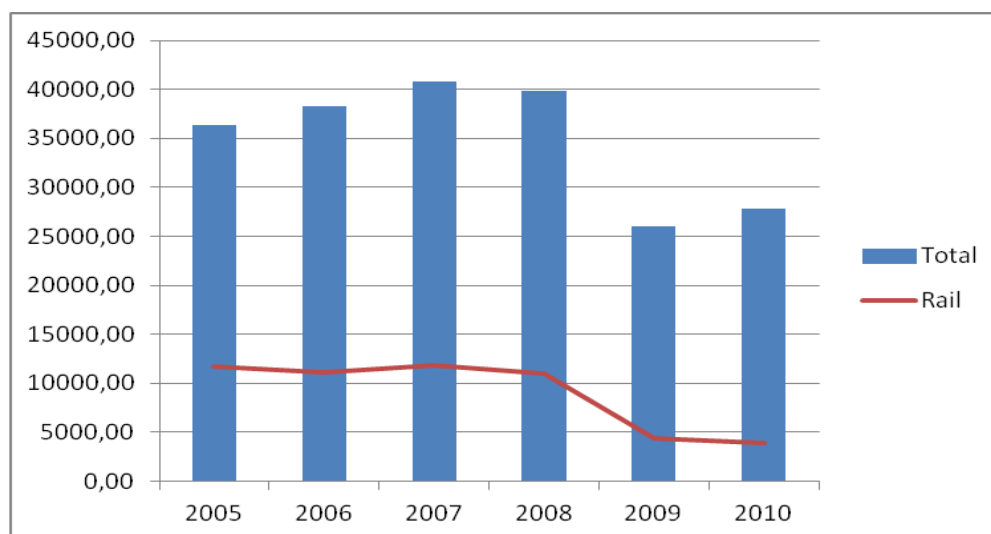
By the moment of finalizing this report the CFM failed to submit the origin-destination data concerning freight transportation. The general analysis shows that the average intensity of freight traffic is pretty low (see Figure 6.4).

The analysis of economic indicators in the freight sector shows the following:

- The declared freight costs of CFM (Figure 6.8) have no visible connection with the general economic situation in the country. For instance, in 2009 when the general level of prices in the economy went down, the total costs of freight operations increased by 50%. In 2010 when the industrial prices went up by 8% the costs of freight operations increased by 15%. At the same time, the costs growth in passenger sector in 2009 was only 1,8%;
- The freight tariff policy seems to be not trimmed according to the market situation (Figure 6.9). In 2009 when the whole economy was living through the crisis and the general level of prices of manufacturers decreased by 3% the railway freight revenue index increased by 45%;
- The rates for freight transit services, as it was mentioned above, were increased in 2009 by 62%. The result was the collapse of the corresponding volumes 5 times in 2010.

All this indicates to the poor cost allocation and economic management in the CFM.

Figure 6.1. Freight Volumes Transported in Moldova, Thousand Tons



Source: Moldova National Bureau of Statistics: <http://www.statistica.md/>



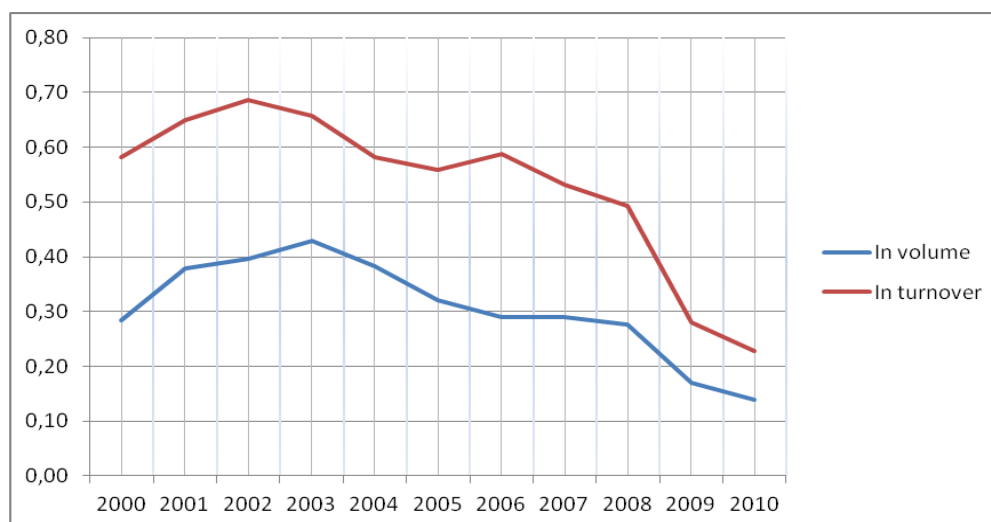


Table 6.1. Freight Transportation in Moldova, 2003-2010

	2003	2004	2005	2006	2007	2008	2009	2010
<b>Volume transported, thousand tons</b>								
<b>TOTAL</b>	<b>34,319.00</b>	<b>34,700.90</b>	<b>36,410.00</b>	<b>38,250.10</b>	<b>40,794.20</b>	<b>39,793.60</b>	<b>25,988.50</b>	<b>27,781.20</b>
Railway	14,738.90	13,309.90	11,704.10	11,092.50	11,846.80	11,006.20	4,414.90	3,852.10
Road	19,459.30	21,270.60	24,593.30	27,015.10	28,779.90	28,584.60	21,390.80	23,800.60
Inland water	120.00	119.70	111.80	141.50	166.50	202.00	182.00	127.20
Air	0.75	0.72	0.77	0.97	1.00	0.83	0.83	1.30
<b>Freight turnover, million ton-kilometres</b>								
<b>TOTAL</b>	<b>4,597.5</b>	<b>5,168.7</b>	<b>5,459.6</b>	<b>6,242.2</b>	<b>5,864.6</b>	<b>5,840.6</b>	<b>3,773.6</b>	<b>4,192.7</b>
Railway	3,019.2	3,005.9	3,052.9	3,673.2	3,120.2	2,872.7	1,058.2	958.2
Road	1,577.0	2,161.4	2,405.3	2,567.1	2,742.5	2,965.9	2,713.7	3,232.4
Inland water	0.4	0.4	0.4	0.6	0.6	0.8	0.6	0.4
Air	0.9	1.0	1.0	1.3	1.3	1.2	1.1	1.7

Source: Moldova National Bureau of Statistics: <http://www.statistica.md/>

Figure 6.2. Share of Rail in Freight Transportation



Source: Based on Table 6.1

Table 6.2. CFM Freight Operations

Freight transportation	2005	2008	2009	2010
Total				
Tons	11,704,098	11,006,191	4,414,925	3,852,105
Ton-kilometres, thousand	2,979,880	2,873,006	1,016,683	927,128
Domestic				
Tons	1,131,630	1,450,623	532,893	529,047
Ton-kilometres thousand	208,681	361,422	123,158	123,290
Export				
Tons	1,443,645	2,517,158	1,400,166	871,886
Ton-kilometres thousand	296,924	610,018	305,978	210,188
Import				
Tons	1,996,511	1,945,182	1,383,533	1,408,765

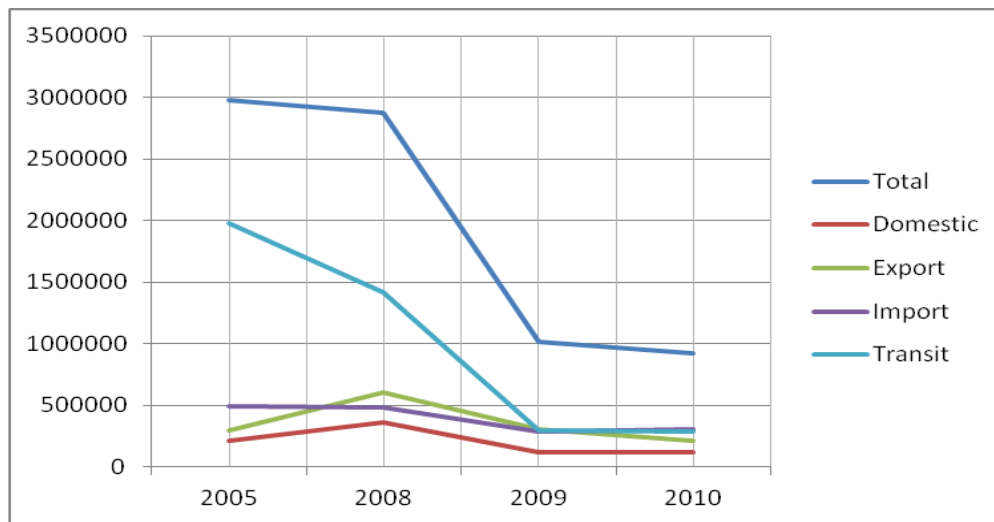




Ton-kilometres thousand	497,289	481,228	286,958	309,045
Transit				
Tons	7,132,312	5,093,228	1,098,333	1,042,407
Ton-kilometres thousand	1,976,986	1,420,338	300,589	284,605
Average train length, cars	51.28	46.73	42.49	44.93
Average train weight, tons	2,752	2,766	2,329	2,441
Average freight car load, tons	54.98	60.05	56.85	55.28
Share of rail on freight market	20.2	18.5	10.7	9.1

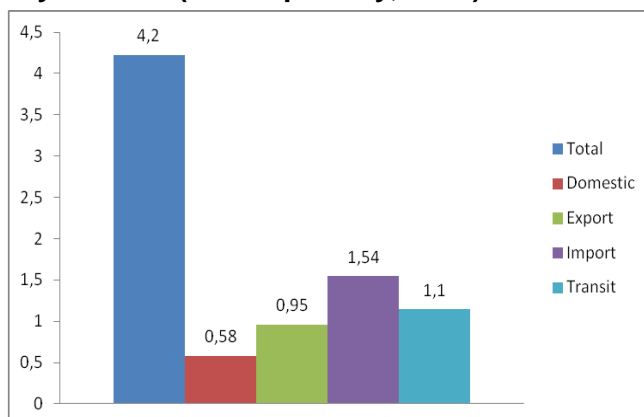
Source: Moldova Railway

**Figure 6.3. Distribution of Railway Freight Turnover between Segments**



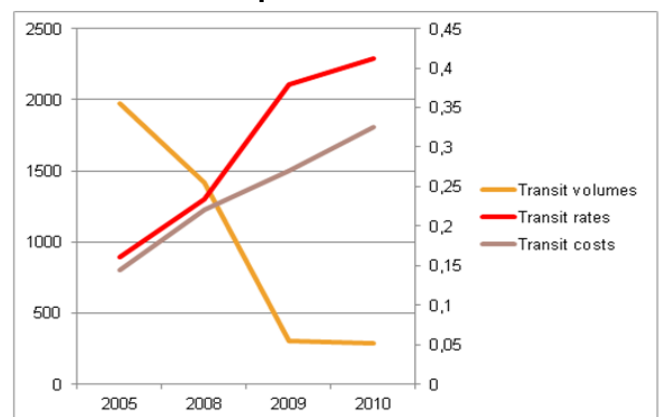
Source: The Consultant

**Figure 6.4. Average Number of Freight Trains by Sectors (Trains per Day, 2010)**



Source: The Consultant

**Figure 6.5. Transit Rates, Costs and Volumes Development**



Source: Calculated on the base of CFM data



# GOVERNMENT OF MOLDOVA

## Transport and Logistics Strategy Preparation



### Technical Report – Railway

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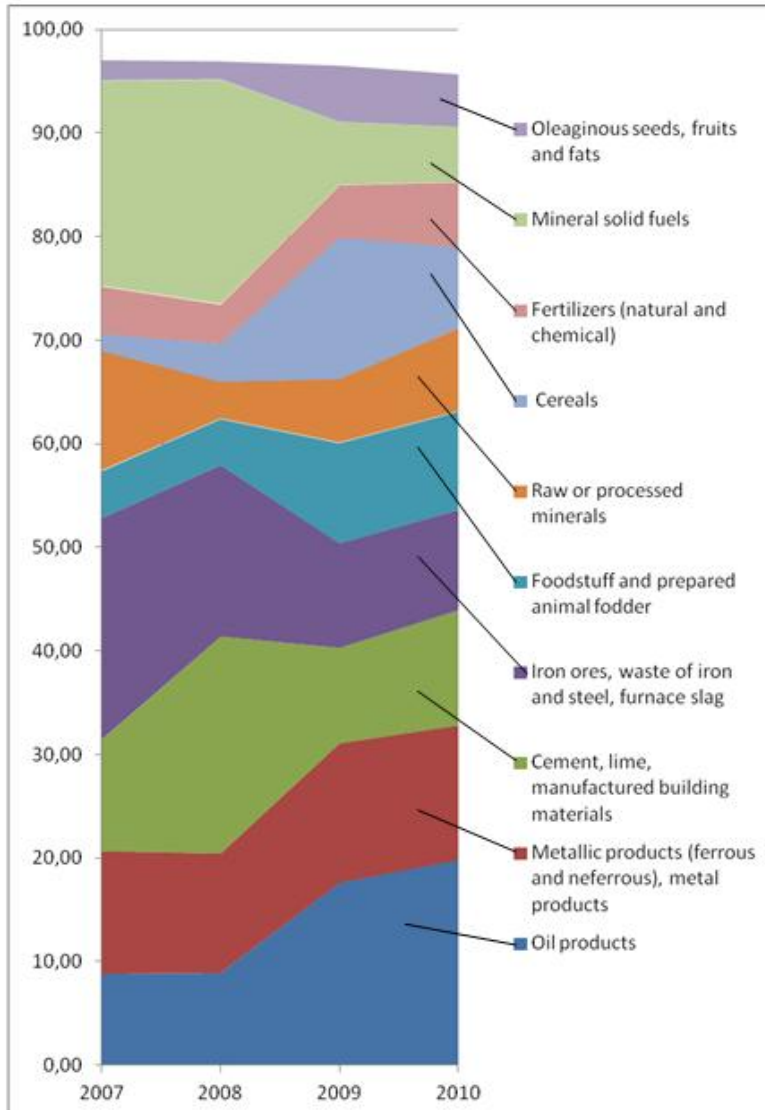
**Table 6.3. Commodities Carried by CFM (% to Total)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>TOTAL</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<i>Cereals</i>	1.18	1.98	5.04	4.58	2.34	3.73	3.57	1.66	3.68	13.65	7.89
<i>Potatoes, fruits, vegetables</i>	0.23	0.13	0.16	0.52	0.33	0.11	0.05	0.09	0.18	0.05	0.03
<i>Live animals, sugar beet</i>	0.21	0.38	0.72	0.17	0.18	0.86	1.27	0.05	0.02	0.02	0.03
<i>Wood and cork</i>	0.45	0.51	0.52	0.51	0.64	0.70	0.94	0.90	1.12	1.45	1.61
<i>Synthetic and man-made textile yarns and products</i>	0.09	0.11	0.13	0.08	0.08	0.06	0.03	0.02	0.01	0.02	0.03
<i>Foodstuff and prepared animal fodder</i>	6.56	6.87	6.46	7.10	7.38	7.28	4.75	4.55	4.44	9.67	9.50
<i>Oleaginous seeds, fruits and fats</i>	1.67	1.68	1.09	0.96	1.23	0.99	1.08	1.93	1.71	5.39	5.06
<i>Mineral solid fuels</i>	19.52	26.55	34.52	29.26	32.07	33.78	19.72	19.84	21.70	6.09	5.32
<i>Crude oil</i>	0.02	0.01	0.01	0.01	0.75	0.02	0.01	0.00	0.01	0.02	0.00
<i>Oil products</i>	14.02	12.41	10.91	13.30	10.15	11.02	10.11	8.80	8.92	17.59	19.77
<i>Iron ores, waste of iron and steel, furnace slag</i>	11.99	11.98	13.16	9.64	11.29	15.44	26.49	21.43	16.58	10.14	9.70
<i>Ores and non-ferrous waste</i>	0.04	0.03	0.41	0.13	0.12	0.14	0.03	0.03	0.03	0.02	0.03
<i>Metallic products (ferrous and nonferrous), metal products</i>	24.02	18.70	10.37	15.46	12.47	2.78	8.92	11.87	11.51	13.47	13.03
<i>Cement, lime, manufactured building materials</i>	10.85	9.33	6.12	8.16	9.51	9.74	9.90	10.74	20.95	9.21	11.13
<i>Raw or processed minerals</i>	3.45	4.31	6.45	5.91	6.43	7.25	7.50	11.58	3.61	6.18	7.99
<i>Fertilizers (natural and chemical)</i>	1.46	1.33	1.16	1.34	2.52	3.79	3.45	4.58	3.78	5.07	6.25
<i>Chemicals derived from coal and tar</i>	1.61	1.31	0.95	0.84	0.51	0.09	0.03	0.04	0.04	0.07	0.05
<i>Chemicals, others than from coal and tar</i>	0.88	0.77	0.58	0.54	0.75	0.84	1.12	0.94	0.59	0.45	1.30
<i>Pulp and paper waste</i>	0.32	0.19	0.22	0.34	0.39	0.42	0.39	0.33	0.32	0.61	0.49
<i>Transport equipment, machinery and apparatus, engines and spare parts</i>	0.22	0.32	0.28	0.24	0.23	0.26	0.18	0.17	0.20	0.23	0.29
<i>Glass, glassware, ceramic products</i>	0.93	0.89	0.55	0.46	0.46	0.38	0.30	0.26	0.24	0.41	0.36
<i>Leather, textiles, clothing and various manufactured products</i>	0.06	0.03	0.03	0.03	0.02	0.03	0.03	0.02	0.04	0.02	0.03
<i>Other products, not specified in other categories</i>	0.24	0.18	0.16	0.43	0.15	0.30	0.14	0.15	0.35	0.16	0.13

Source: Moldova National Bureau of Statistics



Figure 6.6. Principal Commodities Transported by CFM by Share, %



Source: The Consultant based on Table 6.1

Table 6.4. CFM Freight Operations Economics

	2005	2008	2009	2010
<b>Freight Revenues, mio. MDL:</b>				
Total	718.9	1167	602	568.9
Domestic	28.6	108.5	44.4	42.9
Export	142.3	342.4	203.7	155.2
Import	201.5	303.9	201.5	218.4
Transit	316.9	332.7	114.2	117.4
<b>Freight ton-kilometre costs, average, MDL</b>	0.18	0.31	0.463	0.535
Domestic	0.255	0.497	0.71	0.881
Export	0.24	0.419	0.62	0.766
Transit	0.144	0.221	0.27	0.326

Source: Moldovan Railways

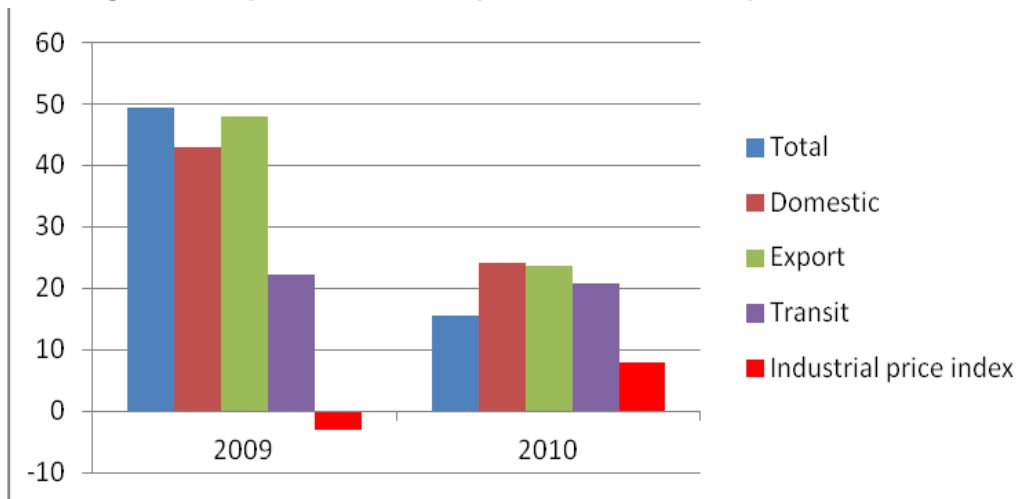


**Table 6.5. CFM Freight Transportation Economics Analysis 2010**

	Freight Turnover	Revenues	Rev/Tkm	Costs/Tkm	Total costs	Result
	Mio Tkm	Mio MDL	MDL /Tkm	MDL /Tkm	Mio MDL	Mio MDL
Total	927	568.9	0.6137	0.535	495.945	72.955
Domestic	123	42.9	0.34878	0.881	108.363	-65.463
Export	210	155.2	0.739048	0.766	160.86	-5.66
Import	309	218.4	0.706796	No data	No data	No data
Transit	284	117.4	0.41338	0.326	92.584	24.816

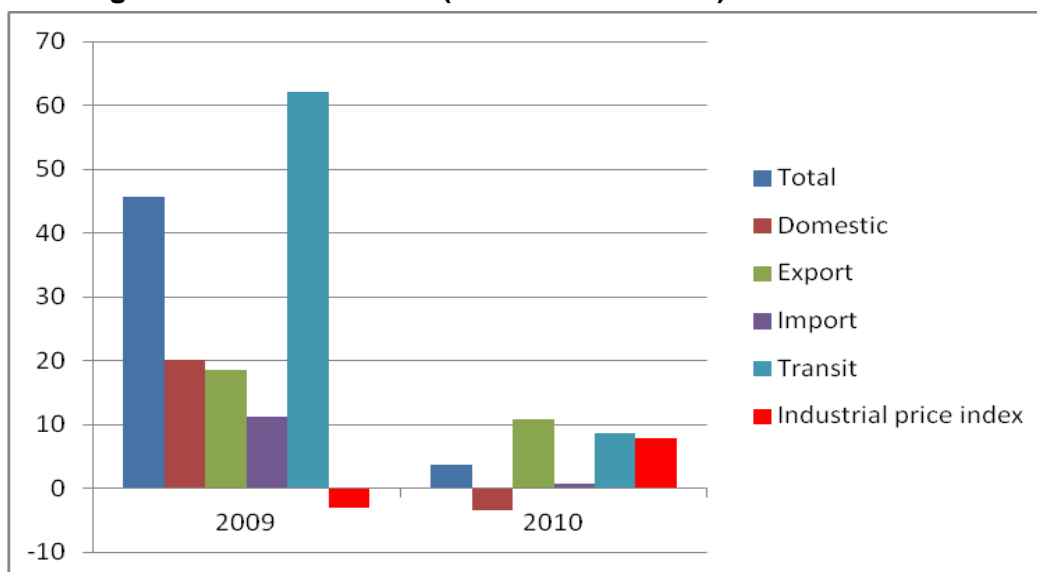
Source: Based on data from Moldovan Railways

**Figure 6.7. Freight Costs per tkm Growth (% to Previous Year)**



Source: Based on data from Moldovan Railways

**Figure 6.8. Freight Price Rates Growth (% to Previous Year)**



Source: Based on data from Moldovan Railways



## 7. TARIFF MAKING MECHANISMS AND POLICY

All the tariffs are elaborated by the Tariff Commission of the CFM (TC) and approved by the MoTRI. The tariff-making system in particular segments of freight transportation can be described as follows:

**The domestic freight tariffs (transportation between the origin and destination points located in Moldova).** The structure of this tariff system corresponds to the old-time soviet railway price-list that had no relation to actual operating costs. The tariff-making procedure is reduced to:

- Identifying the current correction factors to particular rates;
- Granting of special discounts for transportation of particular commodities.

The official list of freight tariffs on the transportation of the loads by railroad in the local traffic was approved by the Ministry of Transport and Communication on April 15, 2002. In 2007 the general level of tariffs was indexed with the factor of 3.

Particular shippers are addressing the TC with the request for discounts. Some of those requests are satisfied, some are not, and no clear rules for decision-making exist.

**In the international freight transportation sector** Moldova is following the international tariff agreements:

- The Tariff policy of the Railroads of the CIS countries for international railroad transportation of goods, which establishes the maximum level of rates for the coming year for each railroad administration and is yearly revised by the Tariff conference;
- The International Transit Tariff agreed by the Eastern European countries and Mongolia.

Both agreements indicate the recommended levels of rates elaborated to make the international railway transportation of particular goods competitive with other modes. The actual rates can be changed by the member railroads according to their economic and market situation. The corresponding decisions in Moldova are made by the TC.

In 2006 - 2008 the transit and international tariffs were increased for the transportation of coal – 2.3 times, iron ore – 2.3 times, coke – 2.1 times, mineral fertilizers – 2.3 times, metals – 2.4 times, petroleum products and oil – 2.0 times, cement and wood – 2.1 times, grain and salts – 2.3 times.

In 2009 and the first half of 2010 the international and transit tariffs were stable. In the second half-year of 2010 the attempt was made to restore the volumes of traffic in transit, import and export. The special tariffs were considerably lowered by the TC for the transportation of coal, minerals, coke, mineral fertilizers, petroleum products and other loads, but it did not lead to expected results.

In August 2011 the Court of Accounts of Moldova executed the audit of the CFM<sup>6</sup>. The auditing report says that "...under the conditions of economic crisis the tariff policy, conducted by management of CFM, was not brought into correspondence with the requirements of the market economy. The absence of market monitoring together with other economic factors led to the loss of clients and, as a result, to reduction in the transportation of the transit loads".

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<sup>6</sup> Decision of the State Court of Accounts of the Republic of Moldova Nr. 31 of 08.08.2011 concerning the Auditing Report for administration of public property by the state unitary enterprise „Calea Ferată din Moldova” during 2009-2010.



The auditing report also says that “...the Tariff Commission functions in the absence of affirmed legal status, without the written tasks, rights, functions, scope of responsibilities. The TC formation is not based on the professional background of the members. Most of the requests of the forwarders concerning reduction of tariffs were deflected, in certain cases - satisfied, both without adequate justification”.

**Passenger tariffs in domestic transportation** are kept at the socially-acceptable level. By the order of the former Ministry of transport and highways starting from 1.09.2006, the passenger rates for CFM were indexed with the rate 1.5. Since that time the rates did not change. In 2008-2009 CFM asked the MoTRI to increase the rates, but the request was rejected.

**Passenger rates in international transportation** are indexed according to the economic situation. In 2006 the rates for international passenger transportation (for the part of the trip within Moldova) were increased with the rate 1.3 and were kept at that level until 2011. At the same time, the railroad administrations of the OSZD countries had increased the corresponding rates much higher, in particular: Ukraine - from 1.30 in 2006 to 2.18 in 2010; the Russian Federation - from 1.94 in 2006 to 3.38 in 2010; Latvia - from 2.80 in 2006 to 7.90 in 2010.

The result is the losses on passenger services (2009 – 163.5 mln MDL, 2010 – 157.3 mln MDL). The losses are compensated by the profits of freight transport services.

The cited already auditing report says that CFM is leading the “...rash tariff policy, which is not brought into correspondence with the requirements of competitive ability and economic effectiveness”.

The Consultant agrees with this conclusion. It should be added that within the existing “monolith” structure of the CFM correct tariff-making is impossible.



## 8. GENERAL CFM ECONOMICS SITUATION

The general analysis of the economic data submitted by CFM (table 8.1, figure 8.1) shows the following:

- Since 2009 the total transportation costs is more than the sum of transportation revenues;
- The only profitable transportation type of activity at the moment is the transit freight transportation. All the other segments of railway transportation, according to the CFM data, generate losses, including international passenger services;
- The passenger costs for domestic services, where tariffs are socially sensible and regulated by the state, are internally cross - subsidized within the CFM that leads to distortion of the economic picture and opens way to abuse;
- CFM makes profit only due to the auxiliary activities that are increasing in volumes since 2009 and include rolling stock repair for third parties as well as payment for freight wagons operated by foreign railway administrations.

The situation like this is abnormal for the railway enterprise. All the mentioned above indicates the poor economic condition and lack of proper economic management of the railway.

**Table 8.1. CFM Operations Economics**

	2005	2008	2009	2010
<b>Freight Revenues, Mio. MDL:</b>				
Total	718.9	1167	602	568.9
Domestic	28.6	108.5	44.4	42.9
Export	142.3	342.4	203.7	155.2
Import	201.5	303.9	201.5	218.4
Transit	316.9	332.7	114.2	117.4
<b>Freight ton-kilometre costs, average, MDL</b>	0.18	0.31	0.463	0.535
Domestic	0.255	0.497	0.71	0.881
Export	0.24	0.419	0.62	0.766
Transit	0.144	0.221	0.27	0.326
<b>Passenger revenues, total, Mio. MDL:</b>	160.8	257.6	215	235.5
Domestic	8	10.7	11	10
International	152.9	246.8	204	225.5
<b>Passenger-kilometre costs, average, MDL</b>	0.848	0.879	0.895	0.985
Domestic	0.83	0.873	0.714	0.804
International	0.861	0.882	1.041	1.836
<b>Revenues from other activities, Mio. MDL</b>				
Subsidiary-auxiliary activities	254.8	238.2	216.9	270
Investment activities	30.9	6.2	1.8	2.6
Financial operations	61.5	106.8	49.9	51.4

Source: Moldovan Railways





Figure 8.1. General Development of Costs and Revenues, Million MDL



Source: Moldovan Railways

The cited already audition report says that the enterprise was influenced by the deep crisis of management, which is characterized by non-functional administration as a result of the absence of the standard system of control of the processes.

The poor management is illustrated by the following facts described by the auditor.

According to the statute of CFM, affirmed to 9.08.2001, the founder transferred the capital property with the total cost of 1,548.7 mln MDL. According to the bookkeeping balance by 31.12.2010, the property increased to 2,096.3 mln MDL. At the same time, the initial composition of the capital and property was not properly evaluated and registered.

The cost of the assets reflected in the bookkeeping balance, does not correspond to real situation. CFM does not have even the plan for the registration of assets which would determine the necessary financial means for these purposes.

At 31.12.2010 CFM owned 2,033 buildings, from which number only 1,001 buildings were registered in a proper way. At 5.01.2011 only 9.3% of land belonging to CFM was legally registered. In particular, the land sections where the new constructed railroad line Cahul-Giurgiulesti is located do not have proper cadastre registration.

The non-transparency of economic operations in the process of the realization of expenditures by CFM subdivisions, together with the incorrect system of internal financial control led to the withdrawal of the significant sums (2.2 mln MDL) from the current accounts.

Purchases of materials and spare parts for significant sums (55.2 mln MDL) through the intermediaries were done with the non-observance of legal provisions, in certain cases without ensuring the certification of the quality of goods and their origin. At the same time the intermediaries did not register the import of the majority of the goods shipped to CFM (42.6 mln MDL) having relations with firms with doubtful reputation activity.



The situation is aggravated by continuous rotation of managers, whose abilities did not correspond to the requirements of proper control. In particular, in 2009 - 2011 the administration of the CFM assets was undertaken by 5 top administrators.

The seriousness of the situation is illustrated by the recommendations given by the Court of Accounts in 2011 to the Government, in particular:

- The immediate examination of the CFM situation, caused by the management crisis, incorrect administration of property and ineffective financial and economic control;
- Establishing of the special regime of external supervision of the financial and economic administration of CFM;
- Examination of the expediency of assignment CFM with the rights of the purchasing agency in accordance with the law about the public procurement;
- Considering the phenomenon of the continuous rotation of the managers of CFM having in view the correspondence with legal rules during their assignment;
- Ensuring the responsibility of founder relative to the measures for the inventory of property in the administration of CFM.

All above mentioned is showing that the financial situation of the CFM is non-transparent and unsustainable. Actually in the financial aspect the enterprise is “manually” managed by the Government, while the standard procedures are ignored or do not exist at all. The situation gives possibilities to abuse and corruption while the internationally adopted “project approach” for the development of the enterprise is impossible.



## 9. DEVELOPMENT PLANS AND PROGRAMS

The Moldovan Government, the Ministry of Transport and Road Infrastructure and other agencies have worked out and adopted numerous strategies, plans and programs concerning railway development as a part of the national transportation system as well as a separate mode.

The Governmental policies intend clearly to enter the European Union, and this influences the transport sector decisions. Moldova should introduce European business and technological standards to facilitate foreign investment. The general aim is to harmonize the transport policies and the legislative framework in the transport sector with the EU standards.

At the same time, Moldova is in the position to take full advantage of the past and current cultural and business “eastern” orientation of the country.

This balanced position seems quite reasonable but needs a rather smart policy, in transport sector – in particular.

**The main documents guiding the national transport policy of Moldova are as follows:**

**The Partnership and Cooperation Agreement (PCA)** signed in November 1994 and entered into force in July 1998 forms the legal basis of EU-Moldova relations.

According to the PCA Article 62 — Transport, the cooperation in the sphere of transport shall, *inter alia*, aim at restructuring and modernizing transport systems and networks in the Republic of Moldova and developing and ensuring, where appropriate, compatibility of transportation systems in the context of achieving a more global transport system.

The cooperation shall include, *inter alia*, the modernizing of railways infrastructure, management and operations, including the modernization of major routes of common interest and the trans-European links, promotion and development of multi-modal transport, preparation of the legislative and institutional framework for policy development and implementation including privatization of the transport sector.

**The European Neighbourhood Policy (ENP)** was developed in 2004, with the objectives of avoiding the emergence of new dividing lines between the enlarged EU and neighbouring countries. The EU-Moldova ENP action plan was adopted on 22 February 2005 and, as regards railway transport, envisages improvement of the average running time of freight trains on selected corridors and Improving safety, speed and efficiency (interoperability) of rail transport services.

**The Concept on Creation and Development of National Network of International Transport Corridors until 2015** (Government Decision Nr. 365 dated 28 March 2002). The development of a national network of these corridors, according to the Concept, is to be carried out in accordance with the EU guidelines for developing the Trans-European transport network.

The aim of the Concept is to define the national transport system as a component part of international transport corridors and main lines, to set out the prior objectives for the development of such a network for the period until 2015 under conditions of the transition to a market economy and to create it according to the standards of Pan-European transport network.



One of the priority objectives of the Concept is to promote the concerted development of transport infrastructure on the territory of the Republic of Moldova aimed to integrate the Euro-Asian transport systems for free movement of goods and passengers through our national borders.

According to the Concept, the development of the transport network in Moldova needs to take in account all the principal international transport corridors envisaged by the main international agreements.

**National Development Strategy (NDS) 2008–2011** (approved by Law No. 295-XVI from December 21, 2007). The document envisages the modernization of the railroad transport system by renovating the main existing railroads, examining the potential for building segments of railways with 1,435 width gauge, to ensure facilitated access of Moldovan exports to the Romanian market; modernizing passenger and freight rolling stock to increase quality, safety and speed of services; assuring effective integration with the European railroad system and offering an extended variety of connections and regional transit.

**Surface Transport Infrastructure Strategy for years 2008 – 2017** (Government Decision Nr. 85 dated 1 February 2008). The document was developed with the assistance and on the basis of the analysis of the World Bank.

This document in the part, concerning railways, envisages railway network rehabilitation, railway restructuring, railway infrastructure development and rolling stock renewal.

The railway network rehabilitation, according to the strategy, will need 2.23 million MDL per one track kilometre. In 3 years 350 kilometres of tracks are to be rehabilitated for the sum of 785 million MDL from the state budget.

As for the restructuring, the Strategy says that “In Moldova which has the small, being in a sufficiently poor condition rail network and the sufficiently profitable international transportation by rail, at the moment complete and wide separation into the different companies for infrastructure services, freight and passenger services **is considered unjustified** (marked by Consultant). The strategy proposes the internal separation infrastructure, cargo and passenger transportation into separate commercial units within the framework CFM with separate calculation of expenditures and incomes and assets allocation.”

According to the strategy, a special study is necessary for the development in the components of the program of the rehabilitation of railroads and definition of the more complex components of the program of restructuring, such as: the separation of bookkeeping, the separation of assets, personnel division for each form of activity (infrastructure, passengers and freight), infrastructure fees, etc. As far as the consultant knows, such a study has not been undertaken yet.

The development of the infrastructure should take place, according to the strategy, after the rehabilitation is finished. The proposed projects are as follows:

- The new Cahul-Giurgiulesti line (built already by now);
- The northern bypass of Transnistria (Marculesti-Soroca - Yampol Ukraine.);
- The restoration of the Basarabeasca - Berezino (Ukraine) line (this and previous projects strangely envisage the large scale railway construction works on the territory of Ukraine);
- New electrified line with the 1,435 gauge Ungheni – Chisinau.



According to the strategy, the sequence of the actions is as follows:

- Restructuring of the CFM and infrastructure rehabilitation;
- Identification of the long-term railway network of Moldova;
- Feasibility studies of the proposed investment projects;
- Evaluation of the conditions for the proposed investment projects implementation;
- Financing schemes identification for the proposed investment projects.

The Strategy assumes that implementation will be largely financed from external sources such as the EU, World Bank (IDA), EBRD and EIB, complemented by the state budget.

**The Plan of Actions to improve the situation at the state enterprise “Moldova Railways” under existing crisis conditions and to provide its restructuring for the next 5 years** was approved on 8 April 2010 by the Ministry of Transport and Road Infrastructure.

As *urgent current actions* (years 2010-2011) this plan, among other measures, envisages:

- Outsource all auxiliary assets from the structure of Moldova Railway State Enterprise, which are not directly related to the transport process by submitting them for free to the balance of the appropriate authorities of the central and local public administration (housing: 230 residential buildings, 83 of which are located in municipality Chisinau as well as other objects of social-utility);
- Define and authorize the right of use all buildings to Moldova Railway State Enterprise, under the economic administration of the Enterprise, through their registration under the cadastral territorial authorities;
- Define and authorize the right to Moldova Railway State Enterprise to use the land for rail transportation delimited by state;
- Bring the transport rates in all types of traffic at the price of transportation cost and ensure the minimum profitability by raising the tariffs or by compensation to CFM of the lost revenues from transportation of passengers;
- Close the CFM railway stations, which are not profitable and have reduced work volume, after coordination with the local public administration authorities;
- Sale and lease of assets CFM unused in the technological process of CFM branches;
- Optimize CFM staff in accordance with existing work volume;
- Attract the state budget sources and foreign investments, starting with 2010, to finance capital repairs programs, such as renewal and modernization of railway infrastructure and rolling stock material;
- Establish funding sources to implement the restructuring of Moldova Railway State Enterprise.

As **medium term action** the Plan envisages preparation of normative and legislative framework for reforming rail transportation (year 2010-2013), including the following measures:

- Create a special governmental Commission with continuous action to reform the public rail transportation;
- Determine the new legal forms of activity of Moldova Railway State Enterprise and its property type, taking into account the finding of a legitimate operation model of the CFM in the Transnistrian region;
- Development and approval by the Government of the Program of reforming the public rail transport for the years 2010 - 2015;



- Development and approval by Parliament of the special Law on the specifics of the reform and management of public rail transport heritage, including the Transnistrian region;
- Introduce the changes and additions to the Law on rail transport in force, to be approved by Parliament;
- Separate legally the domains of public rail transport activity that refer to the sectors of natural monopoly and competition;
- Development the mechanism of separate accounts of income and expenses for each type of activity with natural monopoly and competition in the rail;
- Development the methodology and mechanism for dealing with cross-financing the passenger services at the expense of freight transport;
- Development the methodology and mechanism for the financing of railway infrastructure and facilitating access to rail infrastructure for users of this service;
- Establish the methodology and mechanism to provide infrastructure users with rolling stock (wagons) and haulage services (locomotives).
- Lay off excessive staff of CFM as a result of public rail transport reform, social protection and subsequent employment for CFM dismissed staff;

Finally, among **the long term actions** (years 2014 – 2015) the plan envisages:

- Determination of statutory capital, based on the real value of assets, for the establishment of independent and viable structural units of CFM in the potentially-competitive segments (transportation of goods, transportation of passengers in domestic and long-distance traffic, operation of repair and production enterprises);
- Transition to free price formation and change of type of ownership in competitive sectors of public railway transport;
- Elaboration of rail development program for the next period based on accomplishments achieved by the reform in 2010 – 2015.

On the Consultant's opinion the Plan has the correct general direction. Unfortunately, the character of most of the actions needs the approval and support not at the MoTRI level, but at the Governmental and Parliament level - which did not take pace.

Probably this is the reason why the plan in general had not been fulfilled. The only actions undertaken according to this plan were:

- Development of the technical requirements for electrification and construction a 1,435 mm width gauge on a 107-km railway line Ungheni – Chisinau;
- Preparation of the offer for the purchase of 20 new coaches and 2 diesel trains for passenger transportation by rail in international traffic.

**Activity Program of the Government of the Republic of Moldova „European Integration: Freedom, Democracy, Welfare” for years 2011- 2014.** Among the general market development measures important for the railway transportation the program envisages:

- Improve the legal and institutional frameworks to ensure fair competition;
- Ensure fair competition on the markets with monopolies or companies with dominant market positions and encourage entrance of new companies on these markets;





- Take full advantage of the economic potential of the free economic zones, Giurgiulesti International Free Port, Marculesti International Airport, and industrial parks;
- Conduct regular reviews of the performance of state owned enterprises and companies where the state holds the largest share;
- Monitor implementation of three-year business plans, restructuring plans and modernization plans of state-owned enterprises and companies where the state holds the largest share.
- Encourage the public-private partnership in regional economic, social and infrastructure projects;
- Create a government public-private partnership network to enable coordination of all the activities in this area by the central public administration authorities and the Public–Private Partnership Unit of the Public Property Agency.

The main Governance Objectives in transport sector are:

- Liberalize and develop transport markets;
- Rehabilitate and upgrade the transport infrastructure and connect to the pan-European networks;
- Manage in a responsible and efficient manner the transport system;
- Develop and improve passenger and goods transport;
- Promote the Republic of Moldova as a transit country and align domestic transport with the European transport requirements.

The priority measures to implement these policies are:

- Develop a countrywide transport and communications space, connected at regional and European levels;
- Develop strategies of transport and communications market development, in line with the relevant EU policies and advice;
- Encourage and channel investments in the construction of modern international transport corridors, particularly the IX pan-European corridor;
- Encourage public-private partnerships in the rehabilitation, modernization, construction and maintenance of the transport infrastructure, including by enabling international companies, which can provide the necessary funds for quality infrastructure projects, to carry out public works, provided that the Government has the possibility to collect subsequent payments for the use of that infrastructure;
- Liberalize and develop competition on the market of railway transport services; consider conceding railways to the private sector.



## **10. MOLDOVAN RAILWAY SYSTEM WITHIN THE INTERNATIONAL TRANSPORT CORRIDORS**

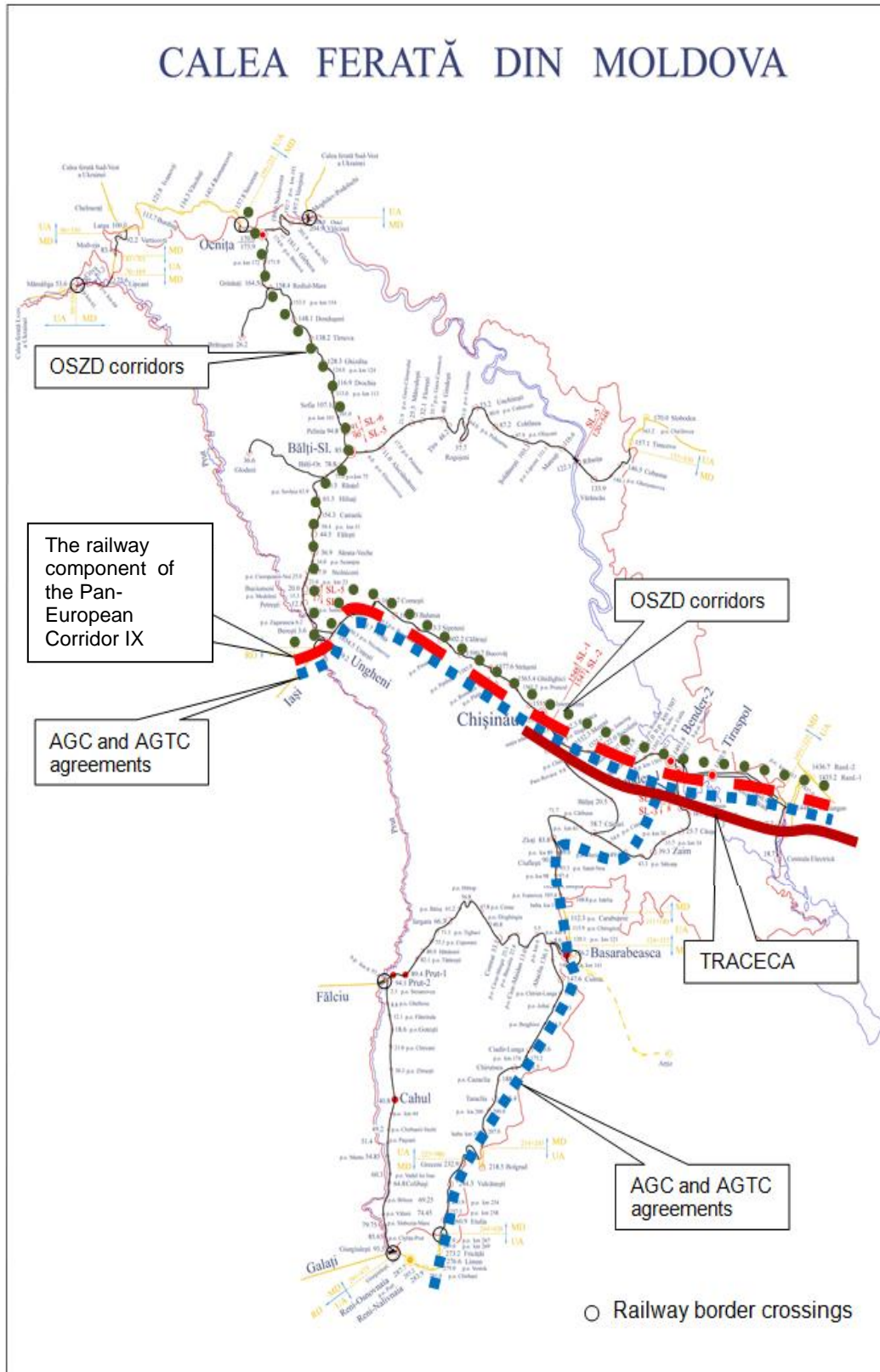
Thanks to its geographic position Moldova can act as one of the terrestrial transit platforms between Western Europe and Eastern destinations – and vice versa. But it cannot be taken for granted and much should be done to make Moldovan transport infrastructure attractive for transit flows, in particular:

- Infrastructure development and transport planning in general should be coordinated with the neighbouring countries and other players on the Euro-Asian transportation and logistical market;
- Internal factors such as transit tariffs, customs procedures, etc. should be all managed as a system to make transit routes via Moldova competitive with the alternatives.

Moldovan transport infrastructure network is integrated at an international level into numerous agreements. In principle, the national transport policy should follow this framework as close as possible. Without any guaranteed financing or freight routing, this could form the general basis for the optimum socio-economic ratio of return of infrastructure projects, increase the involvement of the international financial institutions in the infrastructure projects, and improve the general conditions for integration in the international market.



Figure 10.1. Moldova Railway Network – International Corridors



Source: Based on data from Moldova Railway (CFM)



If these principles are not followed, international trade will find other directions since there are numerous alternative routes around the country.

The principle international corridors in the Moldovan region are shown at Figure 10.1 and described below.

**The PAN-EUROPEAN TRANSPORT CORRIDORS AND AREAS.** The Pan-European Transport Corridors and Areas were established during three Pan-European Transport conferences. The overall concept was developed at the first conference in Prague in 1991. Nine long-distance transport corridors as priorities for infrastructure development were defined at the second conference in Crete in 1994.

A tenth corridor was added at the third conference in Helsinki in 1997 as well as the Pan-European Transport Areas (PETras). In certain areas, particularly those adjacent or linked to marine basins, it has been revealed that the corridor concept does not adequately meet the development needs. The more extensive approach of pan-European transport areas which reflects the complex structure of the transport requirements in these regions was therefore defined. The areas concerned are: the Barents Sea/Euro-Arctic area, the Black Sea basin, the Mediterranean area and the area around the Adriatic/Ionian Sea.

Following the enlargement of the EU in 2004, most of the Corridors are now part of the TEN network. The central position of the countries of Central and Eastern Europe, between the Western European countries and the CIS and between Nordic and Balkan countries, generates the necessity of creating and exploiting an effective network of transport infrastructure and transport services, adapted to EU standards. The aim of these countries to strengthen the links with the EU also pushes the development of this network, combining infrastructure and services.

For the majority of Corridors and Areas a Memorandum of Understanding has been signed between the Ministers of Transport of the respective governments and the European Commission. In addition, steering committees have been established for each Corridor and Area to monitor and promote the progress and performance and to coordinate required actions. Chairs and secretariats have been selected for each Corridor/Area to care for administrative matters. The three-layer concept for transport infrastructure development at Pan-European level is generally adopted:

- The first layer set long-term perspectives for infrastructure development at Pan-European level. These are reflected in the international instruments (AGR, AGC, AGTC) developed under the auspices of the UNECE.
- The second layer introduced a set of medium-term objectives in various parts of Europe. For the EU these objectives provided the guidelines for the development of the Trans-European Transport Networks (TENs). Central and Eastern European countries have set medium-term objectives for the road and rail infrastructure that predominantly followed the TEM and TER networks.
- The third layer introduced the short-term priority actions implementing the second layer.

The Pan-European Corridors network consists of a set of road, rail and waterway links. It was accepted from the outset that the main focus for action would be to increase:

- The capacity of existing infrastructure in order to meet the expected traffic volumes
- Travel speeds (particularly on the railway network).



Some principles are clearly stated such as:

- Economic viability is the main criterion for project selection;
- The construction of new transport links would only be considered in very exceptional cases;
- The organizational optimization of transport operations, services and their inter-links across borders would continue to be an important area for action. There would, for example, be little point in investing in infrastructure to increase the travel speed while continuing to have long delays at border crossings.

Moldova is crossed by the Pan-European **Corridor nr. 9** defined as road and rail connection between Helsinki - Vyborg - St. Petersburg - Pskov - Moscow - Kaliningrad - Kiev – Liubashivka / Rozdilna (Ukraine) - Chisinau - Bucharest - Dimitrovgrad - Alexandroupoulos. A branch runs from Liubashivka/Rozdilna to Odessa. The national transport network of Moldova is covered with the Black Sea Pan-European Transport Area.

**UNECE TER NETWORK.** This is a sub-regional co-operation established in 1990 by the Governments of the Central, Eastern and South Eastern European countries at the initial financial support of UNDP and the co-ordination and support of UNECE acting as the executing agency.

The main objectives of the project are the improvement of the quality and efficiency of transport operations, the assistance of the integration process of European Transport Infrastructure systems and the development of coherent and efficient international railway and combined transport system in the region, in accordance with two UNECE Pan-European infrastructure agreements: European Agreement on Main International Railway Lines (AGC - May 1985) and European Agreement on Important International Combined Transport Lines and Related Installations (AGTC - Feb. 1991).

According to the **AGC** the Contracting Parties adopted the proposed railway network referred to as the "International E-railway network" and described in the Annex I to the Agreement, as a coordinated plan for the development and construction of railway lines of major international importance which they intend to undertake within the framework of national programs in accordance with their respective legislations.

The international E-railway network consists of a system of main lines and supplementary lines.

The main lines are the "major railway axes" already carrying very heavy international traffic or traffic expected to become very heavy in the near future; the supplementary lines are those which, while already completing the network of main lines, will carry very heavy international rail traffic only in the more distant future.

According to **AGTC** the Contracting Parties adopt the provisions of this Agreement as a coordinated international plan for the development and operation of a network of important international combined transport lines and related installations, hereinafter referred to as "international combined transport network" which they intend to undertake within the framework of national programs.

The international combined transport network consists of the railway lines contained in annex I to the Agreement, and of combined transport terminals, border crossing points, gauge interchange stations and ferry links/ports important for international combined transport which are contained in annex II to the Agreement.





The AGC was adopted by the RM's Parliament Decision No 746-XIII dated 23.02.1996. The AGTC was adopted by the RM's Law No 1310-XV dated 26.07.2002.

According to AGC and AGTC, the territory of the Republic of Moldova is crossed with 2 main railway lines: north-south oriented principal line CE-95 along the sector the border with Ukraine - Bender - Chisinau - Ungheni - the border with Romania and supplementary line E-560 along the sector Giurgiulesti - Bender.

**OSZD CORRIDORS.** In 1996 The Organization for Railways Co-operation (OSZD) has defined 13 main railway corridors going through 25 countries – members of OSZD and connecting Europe and Asia. Between 1996 and 2001 the OSJD performed the analysis of technical and operational indicators and technical equipment of these 13 routes, collected data on infrastructure and border crossings and studied ways of improving the freight transport technology. This work resulted in comprehensive measures being drafted for improving the organization of international rail transport operations along the transport corridors between Europe and Asia. The interested countries signed Memorandum of Understanding for the development of these corridors, which served as a basis for coordinated actions by States to reorganize and modernize pertinent railway lines.

In Moldova the following railway sections belong to this system:

- OSZD Corridor V branch –Ungheni–Chisinau–Razdelinaya
- OSZD Corridor XII –Valcinet–Ocnita–Balti–Slobozia–Ungheni
- OSZD combined transport line ACE-95 –Cuciurgan–Bender–Chisinau–Ungheni
- OSZD combined transport line A-95/1 Mogilev–Podolsky–Valcinet–Ocnita–Ungheni.

**EURO-ASIAN TRANSPORT LINKAGES and TRACECA PROJECT.** The Euro-Asian Transport Linkages, as nominated and agreed by countries, and analysed under UNECE supervision, are expected to form the basis of an integrated intermodal transport network linking Europe and Asia. By now, most of the considered routes do not meet the international standards and remain just indicative.

Main linkage with Euro-Asian land transport in Moldova is realized by the following route (corresponding to the AGTC programming E 95): TRACECA project branch 3g, Chisinau – Cuciurgan – Odessa (Port) – Poti (Port).

It must be said that the actual development of the railway infrastructure in Moldova had nothing in common with the international agreements. The Revaca – Cainari connection was, to a large extent, the forced measure to keep the integrity of the national network while the Transnistrian problem is being tackled.

The Cahul - Giurgiulesti was a project aimed to connect the developing Giurgiulesti port with the national railway network. Cahul had been the dead-end on the branch that played no role in the system of the international corridors. At the same time, the Eastern line Basarabeasca – Etulia in principle should have been developed according to the AGC and AGTC agreements.

The development of this direction is objectively within the common interests of Moldova and Ukraine. Moldova needs the access to Giurgiulesti port while Ukraine needs the access to the Reni port. At the moment the existing railway line with numerous border crossings is actually abandoned and both countries are looking for investments to construct the new railway access to their ports.





## **11. ENVIRONMENTAL AND CLIMATE CHANGE CONSIDERATIONS**

There are no special environmental projects or measures undertaken within the CFM system at the moment.

However, the development and restructuring of the railway system will provide positive influence on the environmental situation, in particular:

- Increasing of the railway share in the transport balance will diminish the environment pollution caused by road transportation;
- Replacement of the old diesel locomotives by the new machines with less fuel consumption and more ecological-friendly power units will make the railway transportation more environmental-friendly;
- Optimizing of the railway network, closing of the low-utilized sections and stations will help to return some territories to their natural condition.



## **12. SWOT ANALYSIS AND MAIN CONCLUSIONS**

This paragraph contains the summary and brief analysis of the current situation in the form of a traditional SWOT-analysis.

### **1) STRENGTHS:**

- The CFM is still a single system that avoided fragmentation and loss of management, as it had happened in some of the post-soviet states;
- The CFM has enough consulting materials prepared by international bodies to create a clear framework for future restructuring and development;
- Numerous plans and programs, generally – correctly aimed, are adopted at the moment by the Government, by MoTRI and by the CFM;
- The new Director General - Administrator of CFM has a good experience working with the Romanian EU-reformed railway;
- The traffic density and the general demand for the railway services are at the low level that gives the time and space both for the technical and institutional changes.

### **2) WEAKNESSES:**

- The infrastructure for decades was developed and used as a part of a whole soviet railway system and objectively does not fit the demands of the independent Moldova economy;
- The whole system is historically closely integrated with the ex-soviet railway system (gauge, technology, CIS international agreements). Under the circumstances this is a limiting factor since the basic elements of this system (international institutions, rolling stock and other hardware manufacturers, research centres, etc.) are living through hard times;
- The infrastructure and rolling stock are chronically under-financed. The current condition of infrastructure and rolling stock in general is at low level;
- The system is not at all adapted to the modern intermodal operations;
- The CFM is carrying the burden of the non-core “social” assets that cannot be simply transferred to other owners;
- The CFM in general is characterized by “old soviet” style of management which, first of all, means absence of market-oriented policy, poor economic monitoring and analysis, non-transparency of costs, etc.;
- In spite of numerous plans and programs the real changes, first of all, in the sphere of legal improvements and institutional restructuring of the railway business, are not in place by now;
- The CFM is losing market share and revenues that exacerbates the financial problems;
- As a result of the mentioned above features CFM is not attractive for external partners and investors.

### **3) OPPORTUNITIES:**

- The new Government seems to be in the position to undertake the reforms. Several infrastructural and institutional programs are adopted. If they are implemented it can lead to positive results in the future;
- The development of the Giurgiulesti port gives a clear prospect for CFM to develop as a national transportation “backbone” serving both the export and import flows;



- The national economy is growing and the business shows the demand in transport services, first of all, in export segment. They can be fulfilled by CFM on condition that it improves the quality of services and implement the market-oriented policy;
- The poor condition of many national roads that cannot be rehabilitated in a short time give CFM the principle opportunity to overtake some freight flows from the road transport;
- The comparatively low wages level in Moldova in combination with the corresponding Government policy can make viable some international projects in the railway sphere like, for instance, rolling stock repair and maintenance for foreign customers;
- If Moldova actually undertakes steps for railway restructuring according to the EU model, there is no doubt that the international institutions and private investors will be in the position to support this process and the corresponding investment projects.

#### 4) THREATS:

- The general financial and economic position of Moldova limits the opportunities of immense financial injections into the railway system;
- A long enough list of plans and programs of the Government, generally correctly aimed, lacks the clear achievable targets. Some of those plans are contradictory. The projects are just proclaimed but are not supported by the proper feasibility studies. This can lead to ineffective waste of time and funds;
- Moldova is neighbored by countries with different gauge width and electrified tracks that decreases the value of all the surface transit projects. At the same time, the Constanta and the Odessa sea ports with the corresponding railway corridors anyway look much more attractive to develop the South-North international freight connections than the Giurgiulesti port and the CFM;
- A big share of the freight revenue traditionally came from volatile metallurgic raw-materials transit from Russia and Ukraine. This business is dependent not only on the situation on the particular plant (Arcelor Mittal, Galati) but also on the traffic situation and tariff policy of the Russian and Ukrainian railways that cannot be characterized as market oriented;
- The “Transnistrian” problem causes the unsustainable communication via the eastern railway portals;
- The possibilities for “direct integration” with the neighbouring railway systems are limited. On one hand, different gauge with Romania (EU-neighbour) as well as different legislation and technical standards is a barrier for integration with the EU transport system. On another hand, rather unclear economic and transport situation in Ukraine as well as the outdated railway legal framework within CIS and OSZhD is a barrier for the co-development in the “eastern direction”.

The main conclusions that can be drawn at the moment are as follows:

1. No matter which particular political and economic scenario will take place in Moldova and around it, CFM has no future as an “orthodox type” state-owned railway system. It needs institutional reforms as a base for technological rehabilitation and market development.
2. CFM has no chances for development as an isolated rail company competing with other modes. But it can and should develop as a part of the national transport-logistic system, in particular, being a core of national logistic terminal network.
3. Following the previous, the reforming of the CFM should have two aspects:
  - The institutional reform;



- The market re-positioning according to the national transport-logistical concept developed within the framework of the current project.
- 4. The legal and institutional reform, the CFM restructuring should by all means be the initial step creating the basis for all the programs and projects. Until it is done no investments can change the situation and no investors can be attracted since no profit centres are visible in the system. It is reasonable that the international participation in the Moldovan railway projects should be based on the “assistance in exchange to reforms” principle.
- 5. The CFM structure reform should be EU-oriented, and the result of this reform – “EU-compatible” in spite of the scale of the system, different gauge, technical standards, equipment, etc. The “Moldovan version” of the reform, based on the principal provisions of the EU packages, should start with the “initial” stage aimed to make the system transparent and manageable. The separation of infrastructure and operations as well as the separation of freight and passenger operations, other market and non-market activities should not follow the “competition priorities” but, first of all, prepare the ground for economic sanitation, “lean” shaping of the company, clearing inter- and outer-relations, separating cost and profit centres and developing the cost-based tariff system.
- 6. The deep audit, analysis and cost-allocation should be undertaken before the ambitious investment projects since some of them can turn out to be incorrect or of no use at all. This work needs participation of the independent experienced foreign expert team.
- 7. CFM needs the attraction of the private capital – not, probably, in the form of the “classic” PPP which seems too complicated for a moment, but in a form of private owned (some of them – CFM outsourced) businesses with clearly defined conditions and obligations.
- 8. CFM needs a creation of the daughter national fleet-operating company (probably with the participation of main shippers) to avoid the dependence on the CIS rolling-stock agreement and to attract investments to develop the fleet according to the demand.
- 9. The important part of the reform could be the creation of the entity in charge of the non-profile assets currently managed and financed by CFM. Thus the economics of the railway company itself could be planned and analysed without distortions while the mentioned above assets could be financed, sanitized, sold out, developed or whatever else but on the clear and transparent base.
- 10. The market re-positioning of the CFM should be defined, as mentioned above, in connection with other components of transport and logistics system of Moldova, but it seems reasonable to make the stake on the export-import and domestic demands rather than on transit issues.
- 11. The important issue is the future traffic volumes and possibility of cost recovery and decent infrastructure financing. Even in the most developed European countries the reformed railways are, as a rule, financed by the state (in the infrastructure segment). The Moldovan railway obviously has to be financed by the government for a long time - directly or indirectly, transparently or not. Better directly and transparently, and the proposed reforms are to prepare the condition for this.  
At the moment costs in the CFM are very cloudy and the rates are nor cost-related. Making any assumptions about the future economic feasibility is impossible. Financing sums and the conditions of the financing can be discussed only after the auditing of the CFM is done (that is proposed in the recommendations) and, in fact, later – when the new management develops the new cost-based tariffs.  
At the same time, the current project shows some segments (wagon operation, intermodal services) that can be profitable and used as the “growth points” for future development.



12. The main question of infrastructure development is the optimizing of the network that is excessive at the moment. In particular, Moldova cannot afford two North-South lines to port Giurgiulesti.

The possible options are as follows:

- Finalizing the Cahul – Giurgiulesti project;
- Reaching the agreement with Ukraine about the simplified border-crossing procedures for Moldovan domestic trains;
- Constructing the bypasses on the existing Eastern line to avoid border crossings utilizing the rails and sleepers of the Cahul-Giurgiulesti track that is to be closed.

The consultant believes that the third option should be preferred. At the same time, the decision to be made is political, not technical, since there are too many issues to be considered that exceed the limits of the technical research.

In any case, if the CFM is corporatized and commercialized as proposed by the project, the company management will develop the well-based proposals to optimize the network.

More detailed analysis, evaluation of proposed recommendations and activity plans will be contained in the following report of the current project.



## **POLICY AND RECOMMENDATIONS**

### **13. GENERAL PRINCIPLES OF STATE TRANSPORT POLICY OF MOLDOVA - RAILWAY SECTOR**

#### **13.1. Railways' Role in the National Economy and Transport Sector**

1. Railway is one of the main modes of the national transport system supplying the basic needs of Moldovan society and economy.
2. Converting the railways from the state-owned “monolith” monopolistic system into the effective market-oriented industry attractive for private initiative is the main goal in development of the railway sector.
3. The well-developed modern railway system can not only serve particular transport needs but also attract some traffic from roads that will have a positive ecological effect.
4. Railways should be developed as a part of the national transport-logistic system co-operating with other modes in serving the transport needs of society and national economy.
5. The development of the railway sector should be undertaken in two main directions:
  - The institutional reform of the industry;
  - The market positioning of the railway system according to the general priorities of socio-economic policy of Moldova.

#### **13.2. Institutional Reform**

1. The institutional reform should by all means be the initial step necessary to create the basis for any further programs or projects in the railway sector
2. The main premises of the reform are:
  - The low effectiveness of the traditional full-public structure of railway legally “protected” as a natural monopoly with no space for private participation;
  - The conditions of the transition stage of Moldovan economy when valuable cargoes are attracted by road transport and railway is losing freight and revenues;
  - The intention of Moldova to join the EU which, in turn, means the reforming of the railway system according to the EU “railway packages”.
3. The main objectives of the institutional reform are:
  - Improvement of railway financial sustainability and manageability;
  - Elimination of transport constraints to economic growth;
  - Making the railway sector attractive for private participation;
  - Decreasing the current and future government expenditures;
  - Preparation the ground for EU-integration.
4. Introduction of competition within the railway sector – either “on rails” or “for rails” - is not among the initial targets of the reform due to the limited scale of the system and the objective technological problems of access for the EU operators. The issue of competition development should be analysed when the first stages of the reform are successfully fulfilled.
5. The appropriate model of the reform for Moldova envisages:
  - a. In the aspect of business organization – establishment of the state-owned joint-stock company instead of the current state-owned enterprise;





- b. In the aspect of functional separation – vertical disintegration aimed to final institutional separation between infrastructure management and transport operations;
- c. In the aspect of state regulation – establishment of the Rail Authority and the Regulatory Body within the regulation system envisaged by the EU requirements.
6. The vertical separation should be undertaken according to the “tenant” model” when particular functional business units are outsourced and operate using the infrastructure services of the main company.
7. The initial type of activities to be outsourced is the freight transportation services.
8. The relationships between the players of the railway segment should be controlled by the independent professional Railway Administration with appropriate responsibilities. Initially this body will combine the functions of the Rail Authority and the Regulatory body. Later in the course of the reforms and market development the full correspondence will be provided between the requirements of the EU and the industry structure.
9. As Moldovan railway system is very far from being market oriented and commercialized, the reform should be undertaken gradually phase by phase - having the EU model as a final target. The following three phases of the reform are envisaged:
  - The first phase - agreement about the reform objectives, Reform Program drafting and adoption, initial legal changes;
  - The second phase - CFM corporatization, Introduction of the bilateral Government - CFM agreement, establishing the National Wagon Company as the predecessor of the independent rail freight company;
  - The third phase – establishing the national freight rail company, outsourcing other business structures from the CFM, establishing the necessary regulating bodies and relationships within the railway sector according to the EU requirements.
10. The reform should be developed according to the Reform Program adopted by the Government of Moldova and under the guidance of the Governmental Reform Committee.

### **13.3. The Government Role in Railway Sector Development**

1. The Government of Moldova is guaranteeing the sustainable operation of the national railway system and its development according to the main socio-economic priorities in balance and co-operation with other modes.
2. The national railway enterprise CFM is owned and managed by the Government. After CFM is corporatized and partly privatized, the Government keeps full control over the main railway infrastructure.
3. Performing its main functions in the railway sector, the Government:
  - Elaborates and implements the programs and projects aimed for railway development;
  - Establishes the Railway Administration;
  - Fully compensates all the operating losses of railway resulted by providing the social-necessary services like passenger services, under limited tariffs as well as services related to defence needs, emergency situations management, etc.;
  - Drafts the legal acts necessary for implementation of the reform in the railway sector;
  - Encourages the private business for participation in the railway activities;
  - Undertakes the structural reform in the railway industry.
4. The relationship between the Government and the CFM is regulated by the General agreement which envisages the main obligations of both sides.



### **13.4. Freight Transportation**

1. The freight services of Moldovan railway should be connected with the main goals of the national economy and trade policy.
2. The current priorities in freight services are the following:
  - Supporting the national export, first of all – agricultural;
  - Contributing to the port Giurgiulesti development;
  - Developing the trade relationships with the EU.
3. To ensure the mentioned above priorities, the following measures are undertaken in the railway sector:
  - Establishment of the National Wagon Company (NWC) that will provide necessary types and quantity of the rolling stock. The NWC can be established and developed as a joint stock company with principal exporters as partners. Foreign participation is possible as well. In the future this company can invest into locomotives and become the national freight carrier;
  - Development of modern intermodal services transporting containers, controllers and swap-bodies by shuttle trains on regular basis. The main intermodal routes are Chisinau-Ungheni connecting Moldova with the EU intermodal transport system and Chisinau-Giurgiulesti providing transport services to the port. Intermodal services can also be provided under the international projects, e.g., Viking intermodal train;
  - Creating the railway intermodal transshipment terminal in Ungheni to provide the effective intermodal connection with the EU railway network;
  - Participation in the general logistic infrastructure development, first of all – the rail integrated logistics centre in the Chisinau region.
4. The freight transit that had been for a long period the main source of revenue for the Moldovan railway should be treated as a possible auxiliary service since it depends on many uncontrolled external factors.

### **13.5. Passenger Transportation**

1. Passenger services of Moldovan railway should be developed according to the priorities of the social policy of Moldova.
2. The domestic passenger services should be provided on the basis of social-acceptable tariffs. The corresponding losses of the railway should be compensated by the state budget on the basis of the appropriate mechanism, for example by introducing Public Service Obligation.
3. The routes and service points of domestic passenger trains should be planned considering the development of the coach services.
4. In the future the domestic passenger services can be provided by the separate company established and operating on the basis of the private-public partnership within the concession contract.
5. The international passenger services are developed according to the conditions of the corresponding inter-governmental and other international agreements. In the course of the reform the International passenger company can be outsourced from CFM to operate on full-commercial basis, probably, with international participation.



### **13.6. Tariff Policy**

1. Freight transportation
  - a. Freight tariffs should be set by the railway operating enterprises on the principles of actual costs coverage and non-discrimination of shippers;
  - b. While in the future freight tariffs will be fully liberalized, in the foreseen future they should be approved by the governmental regulation body responsible for that according to the standard procedures;
  - c. In case the proposed rates do not match the customers' interests shippers should have the right and possibility to appeal to the authorized body;
  - d. The approved rates should not be changed for particular period of time to make the tariff system predictable for the customers
  - e. The international transportation and transit tariffs should be set by the carrier with respect to the corresponding international agreements but using all the possibilities envisaged by these agreements to make tariffs flexible and competitive.
2. Passenger transportation
  - a. The domestic passenger tariffs must be socially-oriented and government-regulated. The losses of the carrier must be covered by the corresponding Governmental compensation;
  - b. The international tariffs should be freely set by carriers following the international agreements of Moldova.

### **13.7. Railway Infrastructure Development and Maintenance**

1. The existing railway network is sufficient (if not excessive) for the current and perspective needs. The main goal is to maintain the network properly and keep in good working condition.
2. At the moment there are no economic pre-conditions for constructing long sections of second tracks, or for electrifying the particular lines, or for re-adjusting the particular lines to the 1,435 mm gauge.
3. The Government as the owner of the infrastructure will undertake all the possible measures to make all the existing lines open for exploitation without any administrative barriers (in particular, the part of the network located in Transnistria and the Eastern line located along the Moldovan-Ukrainian border).
4. Particular poorly loaded sections and stations can be closed by the Government decision to reduce the infrastructure maintenance costs. The corresponding decisions should be taken after the analysis of the passenger and freight flows and, when necessary, together with the supporting measures (e.g., introduction of coach services instead of railway).
5. While the maintenance of the railway tracks and main station facilities is the obligation of the state, the development of the transport-logistic infrastructure of railways (terminals, warehouses, ET systems) should be undertaken with private participation.



## 14. ANALYTICAL BACKGROUND AND RECOMMENDATIONS FOR THE INSTITUTIONAL REFORM OF MOLDOVAN RAILWAYS

### 14.1. General Provisions. Reform Preconditions

The end of the XX and the beginning of the XXI century is a period of railway reforms undertaken in many countries, both developed and developing. The general reason for that is that the orthodox model of the state-owned “monolith” railway typical for many states does not work effectively any more in the developing market environment. According to this traditional model, the railway is an enterprise in full public ownership, operating or as a ministry department or as a public entity with an administrative reporting relationship to the ministry.

The railway is fully vertically integrated managing both infrastructure and train operations and all the auxiliary functions as well. It offers all kinds of railway-related passenger and freight transport services and, besides, undertakes a range of non-core activities. Usually the law “protects” the railway as a natural state monopoly leaving no space for private initiative or even participation in the railway activities leaving the railway with traditionally inefficient state management, no incentives for innovations and no means to rise funding from the market.

At the same time, governments often use the “traditional” railway as an instrument for achieving their socio-economic goals like supporting passenger services with limited fares or discount freight rates to some “strategic” industries or keeping the existing number of jobs in the railway enterprise itself. Such a political pressure leads to forced internal cross-subsidizing, concentration on “politically important” projects instead of economically feasible ones and the growing cash deficit. The railway starts neglecting track and rolling stock maintenance and, as a result, the under-financing of assets is snowballing.

In the market environment all the mentioned factors are combined with commercial inflexibility typical to “traditional” railways. It leads to the loss of market share and revenues of the railroad. The service quality is decreasing, more and more often the railway fails to deliver the basic transport services. At some particular point the government faces the necessity of direct investments and subsidies to avoid the economic collapse of the national railway. If the policy remains unchanged, the volume of budget injections is rapidly growing which becomes a visible negative political and economic factor.

World Bank railway projects for many years were focused on investments to repair and rehabilitate facilities that in fact had suffered more from mismanagement than overuse. So bank loans did include more and more requirements for change, and were focused on restructuring. But clients tended to insist on investment components than on reforms.

Railways, especially state-owned ones, are powerful institutions. They are typically the largest single employer in a country and generally have a longstanding institutional life. Due to their size and importance, railways have considerable political clout, which is a significant factor to consider in designing reform efforts. Usually railways are not interested in profound institutional changes, which is quite normal for any organization.

Real political will for reforms and successful reform efforts are often demonstrated only in a crisis situation. The larger the railway - measured by staff numbers, revenues, or share of state budgets - the more profound the crisis must be to find sufficient political support for sustained rail reform efforts.



The Moldovan railway situation corresponds to the described above. CFM is the vertically-integrated state-established enterprise reporting to the MoTRI. CFM is providing all the freight and passenger railway services in Moldova and, besides that, carries the burden of “social sector” (housing, medical services, etc.).

According to the law, the railway is a public structure of state concern regulated and controlled by the State. Transportation by rail is a natural monopoly, requiring special conditions for the development and operation of railway transport. No private participation is allowed.

The numerous ambitious political railway-related projects are being proposed like building the European-wide electrified line from Ungheni to Chisinau or constructing the bypass of Transnistria to Ukraine or electrifying the main lines. This reflects the persistent delusion that investment alone would resolve all the problems.

At the same time, the investments into the tracks and the rolling stock for many years are about zero. Both the freight and the passenger services provided by CFM are unprofitable. The exception is the freight transit, which diminished dramatically due to unwise tariff increase. The positive financial result of CFM (if any) is achieved due to the auxiliary activities like rolling stock leasing to foreign railways and repair services.

The Moldovan exporters cannot get enough rolling stock capacities in the peak export season. In April 2012 it was declared by MoTRI that due to enormous financial losses (about USD 98 million in last ten years) some passenger routes and stations will be closed [Portal National Multimedia, 18 April 2012].

No local improvements can save the situation that can sooner or later erupt into an industry wide disruption. The Moldovan railway obviously needs the total structural reform. Besides the mentioned general issues, there are two other specific preconditions for reforming the Moldovan railways.

**The first additional characteristic** is that Moldova is in the transition period from planned to market driven economy and the CFM, like all the transition countries' railways face the fact that their business model is not adequate because

1. The commodities structure shifts to higher-value goods that makes road transport more competitive; and
2. The supply chains management shifts from just transport costs optimization to total logistic costs optimization.

These reasons usually lead to dramatic downfall in freight volumes carried by rail in most of the transition countries. Only countries that pursued the market model vigorously (like Estonia or Latvia) managed to stabilize the situation quick enough [Railway developments in transition economies, Lou Thompson, World Bank].

**The second additional characteristic** is that Moldova had declared the intention to join the EU. When it happens, Moldova will be obliged to reshape the railway sector according to the EU railway reform uniform approach. So, Moldovan railways should be as close to those requirements as possible since the railway reform in any case is a multi-year effort.

So there is an urgent need to restructure the railway system in Moldova.





A universal railway reform solution does not exist. Nevertheless, the reform options available have expanded considerably since 1990, and the experience gained since then is immensely valuable to tailor the options to fit diverse national needs. Few countries have experienced a reversal in the reform process, and most reforming countries have benefited significantly, albeit not without some problems along the way. Concrete objectives as well as the preferred model of the reform depend on the identification of the reform goals.

#### 14.2. Reform Goals

In the initial stages, railway reform requires a set of clear and prioritized goals that specify desired outcomes of the reforms. These goals are crucial to establish the types of reforms needed and how to implement them. The set of the reform goals differs from one country to another. The table below gives the typical list of railway reform goals and the analysis of their applicability to the Moldovan situation.

**Table 14.1. Generally Accepted Railway Reform Goals and Their Applicability to Moldova**

Reform goals	Applicability to Moldova	Comments
<b>Improve railway financial performance and sustainability</b>	Yes	The financial situation of the railway is critical. The direct government financial injections are often used to fulfil the current obligations.
<b>Clarify and reduce government expenditures and liabilities associated with providing railway services</b>	Yes	At the moment there are no official subsidies from the budget to CFM although it is reported about numerous transfers aimed both to cover the current deficit (e.g., wages payments) and to ensure investments.
<b>Attract private capital to the rail sector to alleviate government investment requirements</b>	Yes	At the moment due to the legal limitations the private participation in railway activities is actually impossible
<b>Eliminate transport capacity constraints to economic growth</b>	Yes	There is a clear evidence of unfulfilled demand in railway transportation, primarily in export. Enormous volumes of agricultural products prepared for export are destroyed because of absence of transport capacities
<b>Increase customer responsiveness and improve services</b>	Yes	The quality of services needs improvement. First of all it concerns modern market oriented services like intermodal, specialized rolling stock, etc.
<b>Develop the competition within the sector (on rails or for rails)</b>	Not at the current stage	The scale of the Moldovan railway system and the low level of the market mechanisms development, in particular - concessions, leave no room for intermodal competition.
<b>Make the railway competitive with road in the European market</b>	Not at the current stage	The Moldovan railway system cannot be directly integrated into a European one - even if the legal basis is prepared - for obvious technological reasons (gauge)





### 14.3. Reform Model

The international experience shows that an alternative to the “archetypal” railway should be formed from three main policy decisions:

- Business organization type;
- Separation type;
- Market competition introduction type.

The three mentioned elements are interrelated. The way how they are combined identifies the industry structure for each particular reform case.

**Business organization.** Business organization type is the *degree* to which the railway is structured in a business-like or commercial manner including the option of private sector ownership or operation of core railway functions.

There are three main options for the business organization of railways: state-owned enterprise (SOE), state-owned company (SOC) and private-owned company (POC). In a properly reformed and structured railway system these forms can co-exist.

State-owned enterprise (SOE) is the current state of Moldovan railways.

By the general experience, SOE is the better decision in comparison with the traditional structures. This form is better adapted to a business environment than the classical “orthodox” state railway directly run and managed by public department or agency. The SOE is pertinent if National SOE legal framework and law are well developed and the Government has strong capacity and willingness to meet its obligations and exert its rights *only* within the SOE framework.

Besides that, to be effective, such a structure according to the WB projects experience, needs some “supporting” bodies and institutes, in particular:

- A professional and independent board of directors;
- Merit-based management selection procedures;
- Management accountability based on short- and medium-term business planning targets;
- Creating business management structures geared to markets and focusing on core functions;
- Enough pricing freedom combined with smart pricing policy;
- use of internationally recognized commercial accounting and auditing standards;
- Contractual agreements between enterprises and government for reimbursement of public service obligations imposed by government.

In case of Moldova we see that National SOE legislation and practical experience in its implementation is weak enough.

The mentioned above supporting structures and mechanisms are in general not in place. The railway is highly politicized while the SOE structure and regulations cannot prevail against day-to-day intervention. Budgetary support which is really necessary for the railway is actually loaned, but it is unstructured and unpredictable.

In other words, the existing SOE format cannot be treated as a basis for further development. The natural step is to convert the state-owned enterprise into a state-owned company.



State-owned company (SOC). SOC is more rigorously constituted at ‘arm’s length’ from government with more commercial objectives, structures, and accountability. SOC format utilizes the general framework of national corporate law, rather than railway law or state-owned enterprise law and it does not require “custom design” as the SOE does. Governments can establish and register a company using a formal company constitution drawn up according to corporate law, using a corporate form that is tried and tested daily by the private sector.

In a joint-stock company, the board of directors’ role is to establish and monitor the company’s direction and strategy to enhance profitability or otherwise ensure a return on shareholders’ funds. At the same time, this format leaves the opportunity for political guidance from the Government and reaching the public goals together with commercial ones. Arm’s length distance from government can be achieved by vesting part of the shareholding in another ministry apart from the transport one, such as Ministry of Economy or Ministry of Finance, because they are interested in the national railway company’s effective performance without the profile-ministry political accountability. By contrast, the profile ministry, normally the Ministry of Transport, could be conflicted by the short-term political consequences of board commercial decisions.

Necessary independence of the railway company requires that the majority of directors on the board are selected for their business skills and industry experience, plus independence from the policy ministry.

The format of SOC requires positive sector and corporate governance. The company law itself is insufficient to prevent a determined government from exerting intrusive shareholder rights, or stacking the Board according to current needs, or embedding a compliant CEO through political patronage, or adopting minimum reporting standards. Ultimately, an SOC is only as effective as government allows, similar to an SOE.

Constructing and managing the railway system according to the corporate law can lead to uneasy situations. For example, during periods of corporate financial difficulties, would the government allow the railway company to fail— to declare bankruptcy and carry out a business wind-up procedure? If insolvency laws are applied to the railway company to benefit the creditors, will the Government let the liquidation of publicly-owned assets of railway? If the railway company management, using the opportunities of the corporate law, establishes a daughter structure to withdraw some assets from the public control – how should the Government react? Avoiding complications like these needs smart everyday control and a deck of pre-discussed measures for possible emergencies.

At the same time, the opportunities that the SOC opens for market development, for rising funds, for using the experience and skills of managers cannot be overestimated. Also important is that the SOC can establish joint entities with third parties, if necessary – with foreign companies.

This is very important from the point of view of business structuring of the railway system as well as for attracting private capital. That is why the format of SOC should be the next step in the structuring of Moldovan Railways. It will also prepare the conditions for further privatization development in the railway sector of Moldova.

A joint-stock company owned by private shareholders is the most commercial oriented structure for delivery of rail transport services in competitive markets. Private companies have much stronger incentives to improve commercial performance than SOEs or SOCs, and much stronger alignment between managers and shareholders on improving the bottom line.



Almost all private operation of previously state-owned railway services has improved market and commercial performance, especially freight railways. Private rail freight companies have been better able to compete in the arduous, low-margin business of moving goods. Success here often depends upon cutting operating costs “to the bone”, and outmanoeuvring a highly decentralized and entrepreneurial road haulage industry that faces relatively few constraints on entry, movement, management, or pricing. This kind of activity is much better undertaken by private company than by a state-owned enterprise.

At the same time, privatization of railway is a very serious step that needs public support. In case of Moldova this can hardly be provided. The experience of the last decade shows that the public opinion of Moldova is very sensitive to the idea of even partial privatization of national railroad assets. Besides that, many governments are uncomfortable with the notion of full private ownership or free-market operation of railway systems. Several issues are mentioned here:

- (i) The inherent monopoly in railway infrastructure;
- (ii) The difficulty of full cost recovery for rail infrastructure from user charges;
- (iii) The ‘lumpy,’ long-term, immovable and therefore risky nature of transport infrastructure that can render it unattractive to private investors; and
- (iv) The concept that ‘common user’ transport infrastructure is inherently public patrimony that should be run for the public good rather than for private profit.

In case of Moldova all of these arguments sound quite reasonable. In other words, the Moldovan railway is too far away from full privatization at the moment to discuss this option in the practical aspect. It seems that private sector participation in the Moldovan railways should begin with the establishment of the National Wagon Company and, later – of the National Railway Freight Company (see below).

The possible organization types and their applicability to Moldovan railways are illustrated by the table below.

**Table 14.2. Possible Organization Types for Railway before Restructuring and their Applicability to Moldovan Railways**

Type of Organization	Features	Applicability
STATE OWNED ENTERPRISE	Better than “orthodox” – type railway, but: <ul style="list-style-type: none"> <li>• No clear contract with government;</li> <li>• Unable to create business units;</li> <li>• Joint enterprises or projects impossible;</li> <li>• Vulnerable for day-to-day intervention;</li> <li>• Insulation from market forces.</li> </ul>	<i>Moldovan Current Mode</i>
PRIVATE-OWNED COMPANY (S) IN CORE ACTIVITIES	Good for developed competitive market, but needs: <ul style="list-style-type: none"> <li>• Well-developed business environment;</li> <li>• Strong mechanisms to protect public interests.</li> </ul>	<i>Possible future option for Moldova</i>
STATE-OWNED JOINT-STOCK COMPANY	The most flexible option: <ul style="list-style-type: none"> <li>• Commercial objectives, structures and accountability;</li> <li>• Market-experienced persons in the board;</li> <li>• Budget and IFI support are focused and</li> </ul>	<i>Nearest goal for Moldova</i>



Type of Organization	Features	Applicability
	<p>predictable;</p> <ul style="list-style-type: none"><li>• Business-planning and joint projects possible;</li><li>• Opens way to mixed business daughter structures.</li></ul>	

**Separation type** identifies the way and degree to which the monolithic nature of the traditional railway system is broken down and some of its sub-businesses are separated and decentralized. How the railway industry structure is divided, referred to as 'separability', comprises two primary dimensions, horizontal and vertical.

Horizontal separation corresponds to the situation when independent railway companies with all the necessary assets and facilities, including infrastructure, either operate on different market segments or compete for clients in particular regions where those companies offer their services. This type of organization is either the result of the "historical" development of the railway system (e.g., in USA and Canada) or the aim of the railway reform breaking down the monolith railway structure (this was done in Mexico and some other Latin America countries).

Horizontal separation works best when there are clearly separable business units with discrete geographic focus. For example, large countries have multiple railway markets - heavy-haul freight in a mining region, major urban centres, and regional networks - each can be owned, managed and financed separately, compete over different routes, perhaps with access to tracks in other regions.

Horizontal separation can sharpen market focus and management accountability, and allow for specialized operations to be devolved, divested, or compete with one another. All of these objectives can be met while maintaining the integrity of a coherent general-purpose national railway system providing long-distance services.

Not to continue this description it should be said that due to the obvious geographical and economic features horizontal separation is not the option for Moldovan railway at all.

Vertical separation envisages the separation of railway into companies for operations and for infrastructure services. Very often such separation is not full: vertically separated 'tenant' train operating companies use the infrastructure of a vertically integrated dominant or host railway.

Typically, governments undertake full separation to maintain ownership and control of the railway network while trying to encourage more contestability and private sector participation in train services. However, this option creates complexity and adds transaction costs and regulatory burdens. The challenge is to clarify allocations of responsibility and accountability between railway infrastructure managers and train services operators at the interfaces of railway technology, operations, safety, and economic concerns.

The vertical separation gives the following opportunities:

- To promote competition in or for the rail transport market, and encourage private sector participation in rail transport operations while maintaining state ownership and control of the railway network;
- To increase transparency in use of government subsidies to the infrastructure.



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Separation between infrastructure management and transport operations is one of the principle requirements of the EU railway legislation. The basic EU Directive 91/440 was created to make it a legal requirement for independent companies to be able to apply for non-discriminatory track access on a European Union country's track. The aims of the directive were to create a more efficient rail network by creating greater competition.

To achieve this aim member states are required to ensure that organizations operating the infrastructure (track, signalling, etc.), and those operating services (trains) are separate and run on a commercial basis (that does not mean privatization!).

Amongst countries that have introduced it there have been positive and negative experiences (as is also the case with integrated railways). Some governments have considered separation but rejected it as too complex or as putting at risk some of the possible benefits of integration such as single point performance responsibility, keeping infrastructure managers 'closer' to final customers, co-ordination of interdependent infrastructure and rolling stock investment decisions; and a unitary command and control structure to meet emergency situations (such as, for example, severe winter conditions).

For now, full separation is confined to some EU countries, and some of Australia's interstate network. Nevertheless, many EU railways (including the largest, in Germany) are not fully institutionally separated.

Separation between the infrastructure management and transport operations is a way for Moldova, if only, because the country is in the position to get closer to the EU and, in the future, to join the Union. Full separation seems untimely for a moment, but the "tenant" model is quite possible for Moldova after the CFM is corporatized.

The first candidate for outsourcing and operating as the user of the infrastructure is the freight company since it is the unit that, among others, has the best prospects from the point of view of economic sustainability.

At the same time, according to the EU requirements the Government must ensure the separation of infrastructure management and transport operations by keeping separate profit and loss accounts and balance sheets and publishing them individually for business relating to the provision of transport services by railways undertakings and for business relating to the management of railway infrastructure. Public funds must also reflect this separation and those paid to one activity must not be transferred to the other.

The measures mentioned above should be necessary when the first independent Railway Undertaking (most probably, the National Railway Freight Company) appears in Moldova. The possible separation options and their applicability to Moldovan railways are illustrated by the tables below.

**Table 14.3. Possible Separation Options and Their Applicability to Moldovan Railways**

Type of Separation	Features	Applicability
<b>NO SEPARATON</b>	Correct costs allocation impossible Market segment focusing is difficult The system is hardly manageable Low competitiveness	Moldovan current option.





Type of Separation	Features	Applicability
<b>HORIZONTAL SEPARATION</b>	Pertinent for big-scale railway systems with clear economic-geographical “focus zones”	Impossible for Moldova.
<b>VERTICAL SEPARATION</b>	Makes the system manageable Encourages private sector participation Keeps state ownership and control when necessary Increases transparency of subsidies and other cash flows	Necessary option for Moldova.

**Table 14.4. Variants of Vertical Separation and Their Applicability to Moldovan Railways**

Vertical Separation Variant	Features	Applicability
<b>SEPARATION OF ASSETS, FLOWS AND MANAGEMENT WITHIN THE JOINT-STOCK COMPANY</b>	Absolutely necessary within the state-owned joint-stock company model	The initial step for Moldova.
<b>“TENANT“ MODEL</b>	Particular operations outsourced and use the infrastructure services of the main company.  Gives good possibilities to develop commercial business units with private participation.	Second stage of reform in Moldova.
<b>FULL INSTITUTIONAL SEPARATION OF INFRASTRUCTURE AND OPERATIONS</b>	The radical decision that allows: <ul style="list-style-type: none"> <li>• Equal access rights;</li> <li>• Full clearness of subsidies;</li> <li>• Ideal market segment focusing;</li> <li>• Matches EU requirements;</li> <li>• But needs very complicated regulation and bears high risks of market collapses and political risks.</li> </ul>	Not to be discussed at the moment.

**Market competition introduction type** identifies the way and the degree to which the railway transport services are to be made competitive between different rail service providers.

Historically, freedom to compete in supplying rail services has been weak or absent from national rail industry structures in most countries, unlike other transport sub-sectors.

Although many attempts are done to introduce intermodal competition in rail sector are done – and even more declared – there is no systematic empirical worldwide review of the benefits of competition within the railway sector has been carried out.

On another hand, the experience shows quite clear objections against the intermodal competition on railways. In particular:





- Railways are a niche transport mode and railways are most competitive where they can achieve high-level capital utilization and economy of scale level. But many railways in developing and transition countries, like Moldova, have inherently low freight and passenger flows, which means that railway managers face the unenviable choice of running longer cost-efficient trains at an unappealingly low frequency, or offering more attractive service frequency for shorter, high-cost trains. In such a situation it is quite clear that artificial implementation of competition will, most likely, lead to a fragmentation fatal for the economics of the transportation;
- Most rail passenger services in most countries are subsidized by taxpayers because fares are inadequate to cover operating costs - in Moldova, too. Introducing competition would reduce the fares, thereby undermining the operators and increasing the drain on the public purse;
- Sometimes governments offer exclusive concessions as incentives for railway services providers to make long-term investments in infrastructure – (but it is not the case of Moldova by now).

Anyway, the successful transformation from traditional-styled railway to a modern market oriented railway system depends less on the choice between the model parameters but more on whether the Government build in the reinforcing mechanisms for the reform, whether they respect those mechanisms when created, and whether it adopts a robust contractual system for any budgetary support or managerial intervention.

#### 14.4. Reform Stages

The experience of railway reforms shows that in most cases changes are slow enough. Railway reform is a multi-year effort. Experience shows that depending on the number and complexity of the reform goals and objectives, reform can take five to ten years. The time investment is substantial - but so are the benefits.

The most critical step in railway reform is when the responsible authorities agree that something must be done and they take the first actual step to begin the process.

Often the first set of reforms is followed by a period of adjustment, then further reforms, usually less dramatic, to refine the outcomes. EU rail sector reforms have now been underway for over two decades and most stakeholders expect these efforts to continue indefinitely as the reform process is rolled out across many EU countries.

The railway reform cannot be done just within the railway company. It should be planned, guided and controlled from outside, from the high level of the state. Otherwise it will lead only to the changes necessary and convenient to the railway company – which is not the necessity and convenience of the national economy.

**The first stage of reforms** should be devoted to agreement about the reform objectives and the reform model. Typically, it takes months and sometimes several years to reach any agreement on reform goals and objectives. Often, a strategy study is required to consider reform alternatives and their implications and prioritize objectives. Wide range public consultations should be integral to such a study. Such an effort is recommended for Moldova as the development of the current project.



When agreement is reached, government usually needs to pass legislation and may need to build new institutions for regulatory oversight - then, more time is needed to staff and equip those oversight institutions. In parallel, the railway itself must be deeply audited and valued; its institutional structure must be designed and implemented; its employees and their skills assessed. The important event of the first stage should be the introduction of the International Financial Reporting Standards (IFRS).

Finally, the governmental decree is adopted giving the official start for changes. This ends the first – preparation – stage of reform.

**The main event of the second stage** should be the CFM corporatization. At the same time the company business-plan should be drafted envisaging the future investment projects. The modernized tariff system should be developed corresponding to the business structure of the company. The bilateral Government – CFM agreement should be developed and signed. The Railway Administration should be also established – probably, as a special part of the MoTRI - as a body combining the functions of the Rail authority and the Regulatory body envisaged by the EU railway packages.

In parallel, the National Wagon Company can be established to supply the Moldovan shippers with rolling stock capacities for export needs. During the third stage of the reform the National Railway Freight Company should be established on the basis of the National Wagon Company as well as other business units (the list and the order should be identified in certain time). At the same time the Railway Administration should be reorganized into the Rail authority and the Regulatory Body should be established with the appropriate responsibilities.

This will form the base for big scale investment projects in the railway sector, including those supported by international financial institutions. The reform should be undertaken gradually phase by phase according to the reform plan or program. This plan must be corrected after each stage is complicated and the results analysed and discussed properly.

The table below illustrates the possible stages of the railway reform in Moldova. The figure below gives the principle idea of the reasonable timing of the reform.

**Table 14.5. Proposed Reform Stages**

Reform stage	Main actions	Main results
<b>1) Preparation stage</b>	Reform program preparation Agreement about the reform objectives Initial legal changes CFM auditing and assets evaluation Governmental Railway Reform Committee establishment IFRS introduction Governmental reform decree adoption	Adoption of reform Program and official reform kick-off.
<b>2) Corporatization stage</b>	CFM corporatization Preparation of company business-plan Introduction of modernized tariff system Introduction of the bilateral Government - CFM agreement The Railway Administration establishing	Converting the CFM into the joint stock company acting according to the corporate law.  Preparation of the market-



Reform stage	Main actions	Main results
	Establishing of the National wagon company Outsourcing the auxiliary structures from the CFM	oriented playground for railway modernization and development.
<b>3) Separation stage</b>	Railway Administration reorganization into the Rail authority Regulatory Body establishing Outsourcing of the business unit to establish the National Railway Freight Company Outsourcing of other business units (depends on the current situation) Realization of investment projects	Starting separation of independent business units, creation the basics for the railway market.



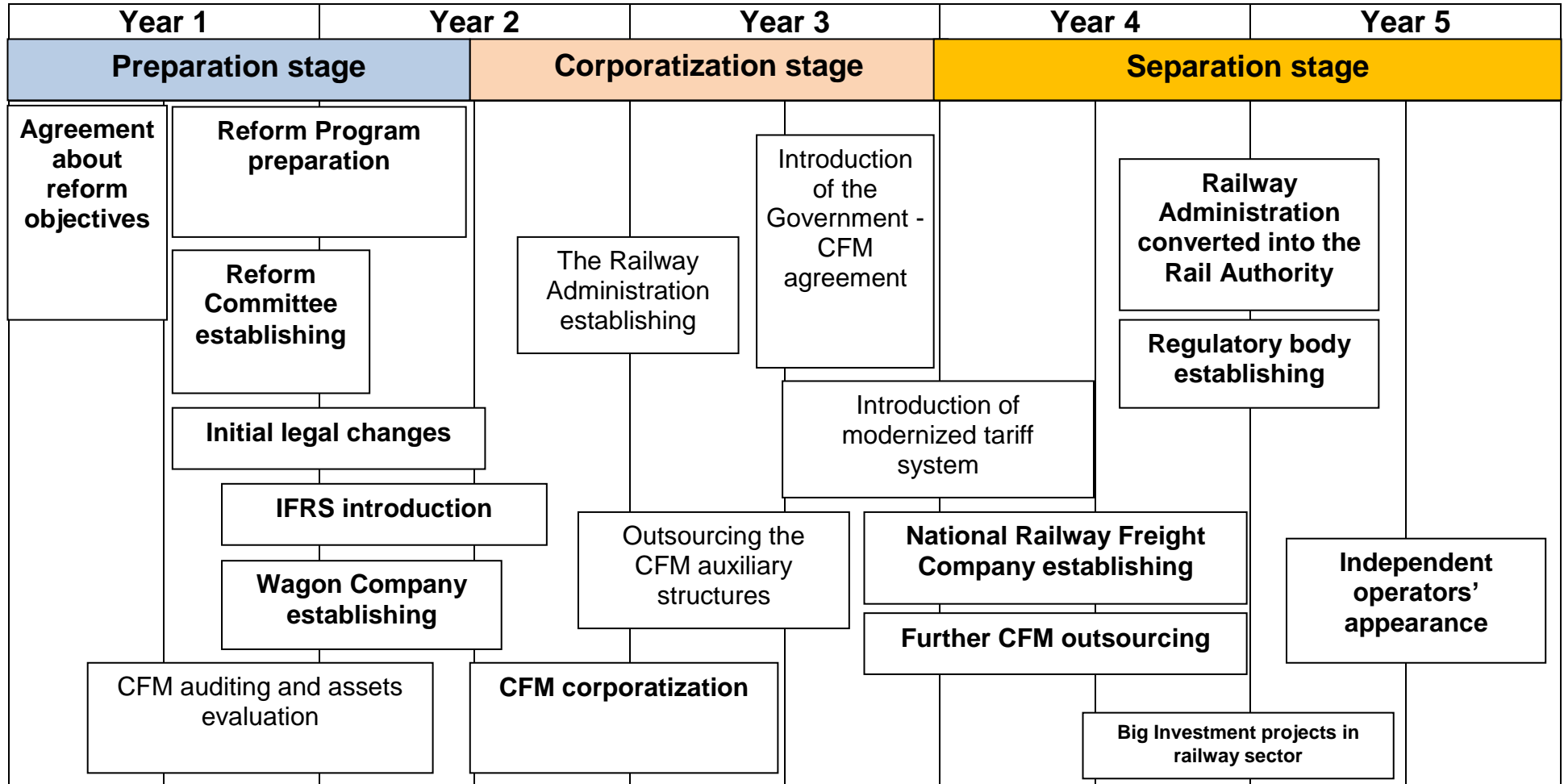
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Figure 14.1. Possible Timing of the Moldovan Railway Reform





**The legal changes.** To begin the actual reforms according to the model chosen, the changes in the legislation are necessary. Whatever model is identified for the reform, no steps can be undertaken without the proper legal base. This is important even for the countries with well-developed market oriented legislation.

According to the current Moldovan law:

- The assets of enterprises, organizations, establishments and units of rail transport, which directly ensure transport process and performing of reparative work, are exceptionally the public property;
- Objects and another property of rail transport, directly ensuring transport process and fulfilment of reparative works, cannot be subject to privatization;
- The privatization of enterprises, and also units and another property of rail transport, other from indicated above, is undertaken under certain time periods and conditions according to the order, determined by the current legislation.

These provisions should be revised since they give no possibilities for private participation in the development of the CFM.

After the legal base is changed the attraction of the private capital will be possible. At the first stages it will not, probably, have the shape of the “classic” PPP (e.g., concessions) which look too complicated for a moment. The reasonable form is a mixed- or private-owned (some of them – CFM outsourced) business units with clearly defined legal and economic status.

The legal changes should not only open the way for private capital participation. The restructuring of the CFM according to the reform model described below will obviously need a special legislation. Apart from tackling the current reform tasks, the legal changes should be done having in mind the EU-integration prospects of Moldova. In this aspect, the main landmark for Moldova should be the so called First railway package (2001) and its two directives: Directive 91/440/EEC and Directive 2001/14/EC.

Directive 91/440/EEC prescribes the main measures addressing:

- The management independence of railway undertakings;
- The infrastructure manager’s independence in management / administration and internal control;
- The separation of infrastructure and transport operations by, inter alia, separating accounts;
- Railways’ debts restructuring;
- Access to railway infrastructure and open access for all international freight.

The Directive is aimed to improve the situation of the national railway companies by granting them autonomy in their management. It also intended to place the national railway companies on a firmer financial footing by means of capital restructuring.

The Directive also opens up access to the rail system for certain types of operations (combined and international groupings) and requires an accounting separation of infrastructure from operations, thereby improving transparency and reducing the anti-competitive risk of cross-subsidizing [Hesserling, 2010].



Directive 2001/14/EC which replaced Directive 95/19/EC aims to ensure that EU Member States adopt transparent processes in relation to access charging (for the use of rail infrastructure) and capacity allocation on the rail network. The key elements of the Directive are:

- Requirement on the infrastructure manager to publish a Network Statement;
- Requirement to establish, determine and collect infrastructure charges;
- Requirement on the allocation of the infrastructure capacity;
- Requirement for Member States to undertake capacity analysis to identify bottlenecks on the network and to address these through route utilization strategies;
- Requirement for Member States to establish an independent regulatory body.

The requirements of the Second and Third Railway packages are aimed to achieve a fully integrated European rail system which is not so important for Moldova – anyway, at this moment.

But the mentioned above provisions of the First Railway package, within EU or not, should be reflected in the Moldovan legislation to encourage the reforms and give the legal base for particular steps when time comes to make them.

The important issue proposed is the necessity of drafting and introducing the brand new legal act dedicated to the new industry structure, management methods, relationship between the actors, etc. This legal act should be named according to the legal rules and traditions of Moldova (it is called in the table below “New railway legislation”) and should be introduced together with the changes in the current legal acts. The table below summarizes the initial recommendations for legal changes supporting the Moldovan railway reform.

**Table 14.6. Basic Legal Changes Supporting the Moldovan Railway Reform**

Proposed legal changes	Aim of the changes	Reform stage when the change should be enforced	Document where the change can be reflected
<b>Railway assets and enterprises can be in private or mixed (public-private) property under particular conditions. The wide enough range of the railway assets, including those directly ensuring transport process and fulfilment of reparative works can be subject to privatization under particular conditions</b>	Opening way to private capital attraction to the industry. Making the CFM business units outsourcing possible.	1	New railway legislation. Code of Railway Transport.
<b>The CFM should be run under the corporate law to make the restructuring possible</b>	Placing the railway company on the firm business base	1	New railway legislation. Code of Railway Transport, Railway Reform program.
<b>Accounts for infrastructure and transport operations</b>	Making the CFM efficient and transparent.	1	New railway legislation. Railway Reform program.





should be separated	Preparing the basis for cost-related tariffs. Making the CFM business units outsourcing possible.		
The CFM debts should be clarified and properly structured	Making the CFM financially sustainable.	1	Railway Reform program.
Railway service operations should be subject for licensing	Preparing the playground for railway market.	2	Code of Railway Transport.
The Government and the CFM should interrelate on the base of the special agreement	Making the relationship between the Government and the railway company stable and predictable.	2	Code of Railway Transport, Railway Reform program.
The access to railway infrastructure and other auxiliary services of the CFM should be open to any entity worthy for undertaking corresponding activities	Making the CFM business units outsourcing possible Preparing the playground for railway market.	2	Code of Railway Transport, Railway Reform program.
The railway Authority and the Regulation body should be established according to the EU requirements	Avoiding the conflict of interests in the railway sector regulation Preparing the playground for railway market.	3	Code of Railway Transport, Railway Reform program.

#### 14.5. Role of the Government

Experience shows that however deep does the market reform or/and privatization in the railway sector goes, the government actions are always necessary, influential and often decisive in helping or hindering a successful railway industry.

Rail sector governance affects who may be industry participants and the terms on which they compete, environmental and safety standards, the extent of public financial support, long-term infrastructure development, among many other factors. All of these are matters of public interests - hence also of government interests.

In short, public interests in the railway sector can be described like the following: the railway industry should be efficient; railway service levels and quality should respond to market demands while maintaining affordability for the public purse; and rail services should maintain national - perhaps international - safety and environmental standards. Six principal functions of the Government can be mentioned in connection with the described above:

**1) Transport (in particular, railway) strategy elaboration and implementation.** The railway industry is subject to the overall umbrella of government policies and actions for the transport sector as a whole. Transport strategy specifies sector-wide objectives and then adopts consistent principles and establishes priorities for using public resources to attain the sector objectives.



The crucial point in the railway strategy is financing strategy. In many countries railway network development is most often presumed to be an internal matter for the industry and any government funding or investment, other than for prestige projects, is considered a temporary aberration that might be avoided if the rail industry restructured or privatized.

In reality, substantial public funding underwrites national railways, but funding tends to be sporadic and handed over reluctantly in amounts that fluctuate arbitrarily. As a result of this unpredictable flow of funds, many rail systems' financial management flounders, seeking to achieve equilibrium among an often ill-defined mix of deficit support, fare subsidy, maintenance back-log, and system enhancement.

International experience has demonstrated that full infrastructure cost-recovery directly from railway users is infeasible in most countries, except those with highest density of traffic flows, particularly of freight traffic.

Financing decisions are the key to achieving inter-modal consistency in a national transport strategy. In principle, common accounting and cost allocation methodologies and costing principles must be developed and implemented for infrastructure segments to avoid competition distortions between modes. Methods of comparing disparate environmental and safety impacts must be devised.

**2) Railway industry structuring.** The second function of government is to create or modify rail industry structure by determining which institutions will deliver rail transport services and developing the policy environment in which they will operate.

Every national government inherits an existing railway industry structure and most continue to administer it extant, either because railway performance is judged adequate, or because the perceived difficulties and political risks of change outweigh expected benefits. In case of countries like Moldova such administration includes the reform guidance.

International development bank experiences in the sector have shown that “appetite” for radical reform occurs only in the face of chronic deterioration in railway operating performance, a rail industry financial crisis, a major shift in political ideology, or some combination of these.

Moreover, experience shows that conditions for achieving reforms include sufficient public support to counteract the losses of vested interest groups when reforms are enacted, and a team of professional administrators or advisers sufficiently motivated and skilled to guide the reform process.

The confluence of these factors is rare enough so fast and radical structural reforms in national railway industries are uncommon. Nevertheless, government remains responsible for railway industry structure.

**3) Purchase of socially important railway services.** First of all, this regards to passenger services that railways provide and the regulation of tariffs for those services.

Budgetary support of passenger transport services is a common and legitimate public policy choice. However, budgetary support should not imply simply picking up the bill for whatever losses occur. Unsustainably high passenger rail subsidies, exacerbated by political pressure to avoid fare increases, create long-term funding instability, underinvestment, and unreliable low-



quality services. Instead, budget support should be accurately targeted to those it is intended to serve; operators should receive incentives to improve efficiency and revenues; and the budgeting process should be open and transparent to underpin long-term affordability and ensure that the policy choices are visible to stakeholders.

Government can achieve these aims by purchasing railway services through a contractual mechanism such as a Public Service Obligation (PSO) envisaged by the Regulation 1370/2007 contract or Passenger Services Contract (PSC). The contract of this type should be a part of the bilateral agreement between the Government and the CFM.

Besides passenger services, few legitimate government-imposed obligations exist in specific freight markets, such as hauling relief supplies to areas suffering natural disasters.

**4) Industry regulation.** Government is under any condition responsible for developing the regulatory framework, administering some of the regulations, and delegating the rest to specialist administrative bodies. Main areas of regulation are:

- Economic (entry, service standards, tariffs for rail services and/or infrastructure access);
- Safety (protecting passengers, staff and communities, incident investigation);
- Environment (ecological impact of rail transport monitoring and control);
- Technical (technical standards and rules providing the integrated, safe and environmentally friendly railway system).

In the course of reform in Moldova the revising of the whole set of regulative documents will be necessary as well as establishing the regulation structure in the railway sector in compliance with the EU regulations.

**5) International agreements enforcement.** The Government should act as a facilitator of international rail integration, important to the railway industry. For Moldova, as for many other ex-soviet countries this function is especially important because traditionally most of international functions were implemented by the state railway administrations. Under the conditions of reform if is necessary to transfer those functions correctly to different governmental bodies.

One of the specific activities in this deck is the transit issues management. In case of Moldova the transit operations were practically lost due to unwise actions of the CFM. Obviously, if the freight transit is to be re-animated it should be supported by particular actions of the state, in particular, improvement of border procedures, etc.

**6) Create the administrative infrastructure.** The state apparatus must suit the industry structure adopted, which can differ by country. Some dimensions include: (i) distribution of responsibilities among ministries; (ii) delegation of decision making; (iii) preference for departmental or agency-type institutions; (iv) preference for single-mode or multi-modal functional divisions within the ministry.

A key requirement is to avoid conflicts of interest by separating the sector policy and regulatory functions from the commercial operation. When policy/regulatory advisory functions and the day-to-day responsibility for a government railway are co-located, government railway administrators usually try to persuade themselves that the interests of the railway company coincide with the public interest in railways.



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Co-location of railway policy, regulation and corporate oversight of railway operations makes it difficult to evaluate policy options such as increasing the degree of competition because that adds risk to the incumbent railway's financial position.

Also, seeking private finance for rail projects can be difficult because potential investors in a new rail venture may feel that partnering with government is like giving a single stakeholder control over entry to the playing field, rules of the game, ownership of a preferred team, and the selection of referees. After railway policy and regulatory roles are separated from commercial management, governments must decide how best to shape its departments to execute those roles.

For Moldova it is recommended first to establish the Railway Administration as a unit clearly separated from the structure of the MoTRI.

The initial function of the Railway Administration is the **railway transportation tariff regulation**. Traditionally MoTRI is the body responsible for effective operation of the railway as well as for the tariff regulation together with other governmental structures. But the closer is the railway to the status of the market-oriented segment of economy; the more visible is the conflict of interest. As a regulator, the ministry may want lower tariffs, while as an operator, it might want higher tariffs. Therefore, railways are fettered in their ability to operate as a business.

The second function of Railway Administration will be ensuring **fair and non-discriminatory access to the services of the CFM before the separation** - infrastructure, traction, repair, etc. - after the business separation begins. In particular, the National Wagon Company and later the National Railway Freight Company should have the access to the infrastructure and (if necessary) the traction services as well as to the repair facilities and filling stations of the CFM.

At the same time Railway Administration should **regulate charges for using the CFM services**. To make sure these charges are fair and consistent, the Railway Administration must have the right to access the accounts of CFM and market players paying for the CFM services.

Railway Administration should also function as an **appeal body**. Market players who feel discriminated against can appeal to the Administration which must have the power to investigate and pass sanctions. The functions described above will be performed by the Railway Administration on the initial part of the reform.

In the course of the reform the Railway Administration should be reorganized into a Rail Authority and at the same time the Regulatory Body must be set up. The two mentioned above units should at the final stage of the reform act according to the EU requirements with the following functions:

Rail Authority - issuing licenses for railway undertakings, establish binding safety rules, grant a safety certificate to RU, issue safety authorizations, provide for an application guidance documents describing and explaining the requirements for safety certificates, certification of the body in charge of maintenance of vehicles, authorizations of the placing in service of structural subsystems or of new rolling stocks, supervising interoperability constituents, monitoring, promoting and developing safety regulatory framework, issuance of licenses for train drivers.

Regulatory Body - monitor the competition in the rail service market, be competent for a complaint of a RU with regard to discrimination/unjust treatment/injured otherwise, upon complaint or on its own initiative take appropriate measures to correct undesirable developments



in the rail markets, deciding on appeals of a RU believes that it has been unfairly treated, discriminated against or is aggrieved, particularly with regard to the networks statement, the allocation process and the charging scheme, ensure that charges for use of infrastructure are non-discriminatory and supervision of negotiations on infrastructure charges.

#### 14.6. The Government – CFM Agreement

Relations among the state entities (MoTRI, Ministry of Finance, Ministry of Economy, etc.) and the railway company must be based on public written document (or numerous documents) to ensure long-term business sustainability. A railway law should envisage such relationships and long-term agreements to ensure that the railway is immune to political changes that could undermine its inherent need for long-term planning and financing.

Typically, agreements between state and railway enterprises are multi-annual contracts for infrastructure maintenance and public service contracts to establish terms and conditions for managing these obligations. All written agreements should follow standard business practices. The agreement between the Government of Moldova and the CFM can consist of the following sections:

- i. *Infrastructure management*, including:
  - Government obligation to finance the infrastructure maintenance and rehabilitation according to the agreed program;
  - CFM obligation to keep the infrastructure in proper condition and undertake rehabilitation projects according to the agreed program;
- ii. *Passenger services provided under regulated rates*, including:
  - Government obligation to pay the pre-calculated amounts of money to cover the difference between the passenger transportation costs and the revenues received;
  - CFM obligation to serve particular passenger routes with agreed capacity and quality;
  - Methods of monitoring and control of this particular segment;
- iii. *State needs provision*, including:
  - CFM obligation to transport particular goods and people for the defence needs, for managing the emergencies, etc.;
  - Government obligation to cover the costs related to the named transport services;
  - Order of organizing and management of the named transport services;
- iv. *Non-profile assets management*, including:
  - Government obligation to transfer the non-core assets from the CFM under the Government or municipal control according to the adopted plan;
  - Government obligation to partially finance the non-core assets staying under the control of the CFM according to the adopted plan;
  - CFM agreement to keep the non-core assets in proper order, partially finance them and, in particular cases, commercially use them according to the adopted plan.

The Agreement can contain other conditions as well.

#### 14.7. Financial Viability of the Railway

A railway achieves financial viability when it has sufficient longer-term financial resources to cover operational costs, to invest, and to meet debt service and other financing requirements. Financial viability depends on multiple factors - some internal, some external to the railways. Some factors that affect financial viability are market-specific but often government policies also





influence the situation. For example, a policy that creates an extensive highway network that can be used free-of-charge makes railways less attractive to freight companies. Also, a railways policy that favours passenger services over freight transport will make the system less profitable. As a result, there is no single set of general rules that would guarantee overall financial viability of the railway.

Below are discussed some principle conditions of the railway financial viability and recommendations for Moldovan railways and the Government are given.

**Traffic and revenues structure.** The demand for railway traffic is originally derived from the so-called underlying demand - either for the goods transported or for the outputs of industries supported by goods transported. The demand for passenger services is derived from human need to move to another location. The underlying demand is the external factor, and railway has little or no at all influence over it.

For Moldova, as many other countries, it is influenced, first of all, by the rate of the general economic growth. According to the Moldovan Ministry of Economy, the economic growth in Moldova in 2013 will be at the level of 4.5%, in 2014-2015 - 5% и 5.5%. At the same time, the foreign trade will grow faster. The export growth forecast about 11% and import - 8%. In any case, the “explosive” growth in demand cannot be expected.

At the same time, railways have influence over their share of transport demand, and therefore volume of traffic they carry. If the railway provides timely, reliable, high value service, the railway can increase its market share.

To influence the market share in freight, the railway according to the best international experience, should follow the principles of **market targeting and product tailoring**.

Successful freight transport companies are those that strategically target markets which best suit their modal capabilities and then adapt specific performance to meet customer needs. The willingness to be selective is primarily a matter of management initiative in the freight railway services. In a well-run railway, commercial managers need to know costs and financial performance for each market segment, disaggregated by route and other factors, sometimes even a specific train or freight customer.

But this initiative is heavily influenced by the traditional institutional framework in which railway managements have been allowed to exercise managerial judgment. For political reasons, managements of publicly-owned railways do not have freedom to withdraw from non-viable freight markets or divest freight assets or staff not necessary to serve viable markets. Besides that, in a multi-product railway, these costs cannot be derived directly from general corporate accounts.

After the target markets are selected it is necessary to tailor products for them. For freight customers, services might be tailored, for example, to bulk freight customers, container forwarders, and general freight. Service tailoring must be done in close contact with the shippers. Unlike passenger markets where there are very large numbers of customers whose transport behaviour can be statistically assessed (and quite well represented in econometric forecasting models) most freight is consigned by relatively few corporate customers, who employ a small number of logistics decision makers. For a small economy like Moldova where the circle of the principal customers that can feed main freight flows is rather small it is even more important.





It is therefore both necessary and feasible for marketing and business development managers to segment markets often to the customer level, get close to these customers, understand their businesses, assess their needs, determine whether railways can meet these needs economically, and match product to customer.

Target markets together with products tailored for them can bring to life feasible investment projects.

For Moldova the recommended target markets are national export support (first of all, agricultural) and intermodal services introduction serving the Giurgiulesti port development and the EU-Moldovan trade (see below).

Transit that had been the main source of revenues for many years and then collapsed seems to be an extremely unreliable segment. It depends on numerous external factors like tariffs of the foreign railways, relationship between the foreign suppliers and clients, market policy and rates of other modes, development of transport corridors on foreign territories, etc. According to this, transit should be treated as a supplementary but not the principle source of growth.

It must be also said that auxiliary activities like rolling stock repair for third parties or wagon leasing to foreign railways or land rent-out cannot be among the target markets for the railway like it happens at the moment, when the mentioned activities help the CFM to make ends meet. State Railways should, first of all, serve the transport needs of the national economy.

**Costs control.** Costs control is the basic condition of any control and management at all. Costs should be correctly allocated to activities in order to identify cost centres, profit centres and to make effective pricing decisions.

Generally, railway costs are classified into rail network infrastructure, train operations, and corporate overheads. Within those principal sectors costs are separated between particular activities, both market-linked and internal. Cost allocation is a key for cost-cutting. Cost-cutting measures, in turn, will help CFM to become an attractive low-tariff carrier. International experience reveals that if the rail service can meet a customer's minimum service performance thresholds, the ability to carry at lower tariff than the competition is the most potent force for attracting traffic.

Service attributes other than cost are, of course, important in transport of industrial and consumer products. Even in transport of bulk raw materials there are sometimes challenging thresholds of regularity and reliability to be met. But rail freight companies can only sometimes match, and rarely surpass road haulage on many of the service criteria. Low tariff is the principal card to be played.

Railways can obtain the lowest cost levels in heavy haul of bulk freights which provides both high traffic density which delivers low unit costs of infrastructure, and large train sizes which deliver low train operating costs.

Experience shows that railways can be the lowest cost alternative even over relatively short-distances if traffic flows are heavy and require no additional transshipment compared to other modes. Examples of such markets are short distance runs from coal mines direct to ports or power stations, iron ore mines to steelworks, grain silos to mills, quarries to cement works, oil refineries to regional storage depots, and so on.



Correct cost allocation for the “monolith” railway enterprises like CFM is difficult firstly, because the proper accounting does not exist and, secondly, because cash from the “common box” can be easily moved to cover any current needs under just administrative and not financial decisions.

The cost-allocation picture is also distorted by internal cross-subsidizing of passenger services and the existence of the non-profile activities like social assets.

For Moldova achieving low costs and constructing cost-related tariffs is one of the principle goals of the railway reform. At the moment, as it was discussed in the A1 report, the revenues for the principal transport activities do not cover the cost which is a sign of either poor management or wrong cost allocation or, maybe, both.

Thereby CFM auditing, corporatizing and internal structuring together with the providing direct and clear budget financing of particular costs is the necessary set of actions to prepare the basis for cost control.

After it is done costs cutting programs will be possible on the basis of pure economy, better management, lean staffing as well as technical improvements in particular business-units.

**Tariff policy: freight transportation.** The basic principle for setting the railway freight tariffs says that while cost knowledge helps to set price floors, it is competition not costs that should mainly determine rail freight pricing strategies.

Having it in mind, the future tariff policy for the Moldovan railways should be developed considering the following principles:

- Revenues in particular market segments should compensate the variable costs. No internal cross-subsidizing between commodities should be allowable. This principle is important for two reasons:
  - 1) At the moment all kinds of freight transportation except transit according to the CFM data generate losses not profits, and
  - 2) The traditional tariff system used by CFM dates back to the soviet railway pricing system and is based on the average figures for all kinds of activities. Thus the price differences between the commodities are related mostly to the transport properties of goods (volumetric weight, potential hazards, weight of cargo units, type of packaging, etc.) rather than to the market situation;
- Prices for particular commodities and routes should be set on the basis of the pay-ability of particular freight, i.e., considering the value of the transportation to the customer;
- Tariffs for particular services should be a part of service tailoring (see above) and must be formed on a point-to-point basis (not per ton-kilometre) and commodity related;
- Since there is no direct competition on rails in Moldova and the rates cannot be established as a result of competition between carriers a special body (Independent Regulator) is necessary to balance the rates.

The general tariff-making procedure at the transition stage to the fully EU-compatible system should contain the following elements:

- The MoTRI in co-operation with other ministries and the CFM works out the General tariff rules (GTR) identifying the tariff-making principles and procedures. The GTR are adopted by the Government and officially published;



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- The railway freight carrier (CFM) following the requirements of the GTR sets the cost-based rates for particular commodities and routes and offers them to the customers;
- In case the proposed rates do not match the customers' interests they can apply to the Independent Regulator and the case should be openly discussed there;
- The Independent Regulator should use the standard procedures and appropriate database to decide whether the particular rates are fair or not;
- The published rates should not be changed for particular period of time (e.g., 6 months) to make the tariff system predictable for the customers.

As for the international transportation and transit the tariffs should be set by the carrier with respect to the corresponding international agreements but using all the possibilities envisaged by these agreements to make tariffs flexible and competitive.

**Tariff policy: passenger transportation.** Passenger tariff policy is different for international and domestic passenger transportation.

The domestic rates must be socially-regulated and the losses must be covered by the Governmental subsidies according the Government-CFM agreement. The volumes of the services produced as well as the particular routes should be identified in connection of the coach services regulation to provide the best cost-quality transport service for the population. The international tariffs should be freely set by operators following only the international agreements of Moldova in this particular sector.

**Tariff policy: infrastructure charging.** When necessary, the procedures should be established according to the EU Regulation 2001/14.

**Infrastructure.** Generally speaking, long-term technology choices, investment and maintenance policies for rail infrastructure are critical to the underlying competitiveness of railways. All railways face situations in which non-investment capital must be spent for personnel, safety or environmental reasons. Yet experience indicates that there is considerable other capital expenditure on railway infrastructure that is also not 'investment' in the normal sense of having a clear rationale or commercial return. Instead of putting money where the market is, or where cost savings may be greatest, infrastructure spending too often contains a deal of metaphorical 'ballast', weighing down on the business, responding to technical aspirations or untested commercial judgment without any serious assessment.

Railway infrastructure networks' financial sustainability depends critically on high traffic volumes. Good railway network economics requires high infrastructure utilization.

This is true whether the infrastructure network is part of a vertically integrated railway, or provided by a separate rail infrastructure authority or company. Vertical separation of train operations from railway infrastructure is insufficient by itself to improve railway financial sustainability, although it may facilitate other policies that help. In case of Moldova it is twice as important because, as it was shown in the A1 report:

- The existing traffic volumes and revenues are too small to cover even the current maintenance infrastructure costs;
- The infrastructure had been underfinanced for many years which leads now to a necessity of intensified infrastructure financing;
- The length of the tracks - already excessive - had been increased by the implementation of the Cahul – Giurgiulesti project.



For achieving the financial viability of Moldovan railways it is important to:

- Freeze for the foreseeable future any projects significantly increasing the length of tracks or increasing the burden of infrastructure assets (like electrification that is effective on freight lines with high volumes - at least 40 million gross-tons per year – which is ten times more than the current traffic on the whole Moldovan network);
- Undertake a special program aimed to decrease the length of the infrastructure in service.

This program should be based on a purpose-done study and include the closing of poorly loaded sections of the network and station facilities. The important part of this program should be a decision leaving one instead of two existing lines to Giurgiulesti port.

**Government subsidizing.** The worldwide experience shows that practically no railway can be in a long run financially viable without a support from the budget, and the infrastructure costs are the main reason for that. If the railway is a social-oriented passenger carrier, this is another reason for constant budget financing.

Moldovan railways, as it is reported, gets constant budget assistance that is sometimes indirect and not reflected in the accounting properly. This helps the CFM to make ends meet but it leaves no opportunity for an accurate financial analysis of the railway. More, it kills any incentives to cost-cutting and opens possibilities for abuse.

For Moldovan railways it is recommended to:

- Adopt as soon as possible the International Financial Reporting Standards (IFRS), and use IFRS-qualified external auditors to clarify the financial situation within the CFM;
- Identify (on the basis of auditing and internal restructuring of the CFM) the volumes of the necessary infrastructure financing and passenger traffic subsidizing that cannot be covered by the revenues of the railway;
- Establish the mechanism of covering the mentioned costs from the budget directly or via some special funds and to reflect this mechanism in the Government-CFM agreement.



## **15. DEALING WITH NON-CORE ACTIVITIES AND ASSETS**

The important issue of most of the railway reforms is dealing with non-core activities and assets. The Moldovan railway is not the exception.

The term 'core activity' generally means the market focus of organization that differentiates a business from other sorts of businesses. For railways the core business is delivering transport services through efficient use of railway technology. Following this approach, constructing railway lines, manufacturing rolling stock, printing tickets are non-core activities— as well as housing, health-care and social services, etc.

Traditional railways needed to be highly self-sufficient since they often developed and operated on the territories without any business and social surrounding where no outsourcing or even supply was possible. Besides that, in many countries (especially – socialist) railway as a powerful and profitable enterprise was obliged to run or support financially houses, hospitals, kindergartens in the regions with poor developed social facilities.

Four main groups of activities associated with traditional railways can be named outside the 'core' railway business. These are:

- Social services for employees and, sometimes, for non-employees (living houses, schools, institutes, clinics, hospitals, nursing homes, etc.);
- Materials supply and manufacturing (quarries (ballast), forests (timber sleepers), power stations, maintenance tools, locomotives, coaches and wagons, etc.);
- Business support services (occupational health, occupational training, engineering design, construction services, heavy repairs, vehicle cleaning, printing & publishing, security, railway banks, etc.);
- 'Extended' businesses (Hotels & restaurants, train catering, road haulage, passenger road coaches, ICT & logistics parks, forwarding & logistics, rolling stock leasing, property development, etc.).

Nowadays few railways retain such a wide range of activities. Modern, competitive railways must concentrate on sourcing and procuring those necessary but non-core services in the way that will best support the core transport business.

It should be also considered that central and local governments now provide social services, which have expanded rapidly throughout the world, replacing services once provided by companies and state-owned entities. Moreover, in recent decades rail modal share had declined and railways could no longer afford to divert increasingly scarce resources into activities better provided by other branches of government, and could no longer guarantee employment security and 'cradle-to-grave' benefits for the staff.

The international practice has shown that the most important issue in course of the railway reform is the social services since they are related not only to particular financing but also to the long-established railway worker benefits. Social services can be basically divided into three types:

- (i) Can be transferred to more appropriate public providers such as central or local government;
- (ii) Can be sold or transferred to a private provider;
- (iii) Cannot be readily transferred to a more appropriate provider but and supply important benefits to the staff.





Experience suggests that most social activities can be restructured within the following scheme:

- 1) The detailed inventory of the assets and property should be prepared with all the necessary legal- and paperwork to make possible further operations;
- 2) The considered assets and activities should be separated from all the other assets and activities not to distort or deteriorate the economics of the railway company. Well-based decisions on the non-core assets need transparent cash flows. Even if the social activity is the center of losses (which is normal) it should be allocated to a separate account where the costs, losses and actual subsidizing sums can be controlled;  
**In particular, for the reform of Moldovan railway it is recommended to create a separate unit for running and financing social assets while corporatizing the CFM.**
- 3) Information of the unions and the staff and consultations with them concerning the program and the timing of the transfer of the assets;
- 4) For assets that can be transferred to more appropriate public providers such as central or local government:
  - Preparation of the plan of transferring of assets that can envisage the full or partial subsidizing of the particular assets (while still on the account of the railway) from the appropriate budget for transition period;
  - Negotiations with the appropriate authorities about the minimum benefit levels to railway employees that benefit from particular assets for the defined period;
  - Agree on value or regular lease charge for the property to be transferred;
  - Agree on compensation to staff for diminution of staff benefit, if any.
- 5) For assets that can be sold to private sector:
  - Corporatize or separate the assets properly for sale and select sale method;
  - Adopt short-term measures to maximize market value and agree compensation for redundancies made prior to sale;
  - Agree on compensation to staff for diminution of staff benefit, if any;
- 6) For assets that cannot be readily transferred to a more appropriate provider:
  - Consider the possibility of transfer to staff association or employee trust;
  - Consider contracting out the operating to a specialist manager.

It should be mentioned that adjusting long-established worker benefits requires utmost caution and respect because employee resentment can easily spill over and impair other aspects of railway reform. For this reason, the proposed process includes the highest requirement for staff communication and consultation.

Ultimately, if some employee benefits are cost-effective, not easily transferred to a more suitable provider, and demonstrate high value in terms of staff morale, it is often best to retain and improve them.

### 15.1. Social Implications of the Reform

Human resource management at railways is an important and multi-faceted function that requires special methods for managing training, safety protocols, and skills. In reform and restructuring efforts, human resources management must cope with several specific tasks.

Generally productivity rises with advancements in technology, new investments, and commercial management practices. In the course of reforms many of those factors are multiplied, and even if the reformed railway has an increase in traffic, railway management can discover that they have too many employees.





During reforms, human resources managers must:

- Decide how many staff are needed for each function, and
- Develop a rational schedule to shed excess staff and/or fill staff shortages.

A complete human resources management program for designing and implementing railway reforms includes right-sizing, buyouts, retraining, and developing new pay structures.

**Right-sizing of the staff.** Managing excess staff and developing right-sizing plans is a major task in the reform process. Usually it is a painful process, but the reform managers should clearly understand that keeping the excess staff, it is difficult to restructure or entrench a culture of increased productivity and improved performance.

Several methods exist for determining rational staffing numbers— for example, gross comparisons with similar railways or detailed benchmarking studies. Data to conduct gross comparisons are available from UIC and World Bank sources. More refined studies can be conducted with the help of consulting firms specializing in such analyses.

Staff cuts can be introduced through a hiring freeze, or through special programs that offer incentives for staff to leave. Along with staff cuts, reforming the railway will need external recruiting of new skilled specialists to fill new jobs that require skills in marketing, market research, and management. It should be accompanied by job descriptions that specify responsibilities, outputs, and the required skills and educational levels. However, before looking outside, internal recruitment may turn up staff capable of satisfying the new job requirements, or willing to undergo training to develop the necessary skills.

**Buyouts (compensation schemes).** One of the most effective ways to shed excess staff is buyouts. Redundant employees can be invited to volunteer or be asked to leave.

Designing employee buyout programs is not easy. Buyout programs must reflect the age profile of the enterprise, and must be designed so that the railway maintains critical skills. Buyout programs management should consider the risk with a voluntary scheme is that the better staff will take the buyout because they have more options in the job market.

Some buyout programs can target recent hires and provide a modest incentive for separation. Other buyout programs can be designed to shed soon-to- retire staff by topping off pension plans and providing incentives for early retirement. If so, buyout programs do not stay within the framework of the railway industry only and should be supported by specific measures of the government.

**Retraining and reconversion.** Often, in the course of reform it turns out that older experienced railway staff lack skills needed to operate or maintain new technologies that the railway may acquire during a restructuring and reform program. Very often, and probably it is the Moldovan case, the skills needed first of all are related not to technologies, but to marketing, business management in the competitive environment, corporate management, etc. Hence, staff skills must be upgraded and new skills acquired.

For Moldovan railway reform in particular retraining in the Romanian railway industry can be recommended because a) Romanian railways are already reformed according to the EU requirements and b) retraining in Romania will not cause the language barrier.



Another aspect of retraining is providing the redundant staff that will not find their jobs in the reformed railway system with skills that will help them find the new job. That is computer and software instruction and job-search, resume-writing, and interview skills. Often, development bank grants and loans can be used to finance retraining programs, because retraining is part of right-sizing and overall reform efforts.

**Payment structures.** Right-sizing efforts should include a system to rationalize pay scales by defining the necessary skills and abilities for staff positions and benchmarking wages against the local market.

New commercially oriented organizational structures require matching remuneration systems. New pay structures usually include incentive pay schemes, which should be designed to elicit desired behaviours or skills. Proper design of the payment structure is a task that can be outsourced to a qualified external consultancy.

In general, the costs of the human resource management during the reform can run high enough. Like any other investment, they must be weighed against the return, based on saved labour costs and higher efficiency.

Recognizing the long-term value of right-sizing the workforce, development banks have provided financing for employee reduction and retraining programs. The World Bank has produced a Labour Redundancy Toolkit which can be referenced for this purpose (<http://rru.worldbank.org/documents/toolkits/labor/toolkit/module1/resources.html>).



## 16. POSSIBLE PROJECTS IN THE RAILWAY SECTOR

Project Title	RAIL TRACK REHABILITATION
<b>Situation</b>	The main tracks of the Moldovan railways for many years had been underfinanced that is objectively leading to the lower speeds and lower transport safety and will unavoidably need urgent budget investments in the future.
<b>Main goals of the project</b>	Improve the quality of the tracks and the transport safety on the most important railway lines.
<b>Scope of work</b>	Within the project the rehabilitation works should be undertaken including the disassembling the existing tracks, re-ballasting, putting the new slippers and rails, track trimming, other works if necessary.
<b>Business structure</b>	No special business units should be set up.
<b>Functional units</b>	The project must be undertaken by the responsible structures of the CFM with the assistance of the technical experts of the financing IFI if necessary
<b>Pre-conditions of realization</b>	No specific pre-conditions.
<b>Implementation period</b>	The project can be started immediately.
<b>Implementation location</b>	The sections to be repaired must be identified by the CFM specialists according to the current condition of the tracks. Preferably is the rehabilitation of the sections on the Chisinau-Ungheni line and the Chisinau – Bender line. Both lines are within the main International transport corridors and provide the principal connection of Moldova with the EU in the West and the CIS in the East.
<b>Estimated investment value for the IFI</b>	With the price of rehabilitation about 200 thousand EUR per kilometre and the total length of the rehabilitated tracks of about 100 km (10% of the CFM track length) the financing will be about 20 million EUR.

Project Title	NATIONAL WAGON COMPANY (NWC)
<b>Situation</b>	Moldovan exporters cannot obtain the necessary number of the rolling stock to ship their production, in particular, in agriculture. At the same time, the wagons of the CFM are often used by foreign railways under the conditions of the CIS “Common fleet” agreement.
<b>Main goals of the project</b>	The project implementation will help to: <ul style="list-style-type: none"><li>- Avoid the dependence on the CIS rolling-stock “common fleet” agreement that pays the Moldovan freight cars sent abroad to the disposal of the foreign railways;</li><li>- Supply the national shippers, primarily – agricultural products exporters – with necessary capacities to export their goods;</li><li>- Attract private investments and market management skills into the railway industry.</li></ul>
<b>Business structure</b>	The NWC should be established as a joint-stock company according to the corporate law of Moldova. Among the shareholders of the NWC can be: <ul style="list-style-type: none"><li>- CFM;</li><li>- Principal exporters interested in stable supply of the capacity;</li></ul>



	<ul style="list-style-type: none"> <li>- Foreign railway companies, including wagon operators or freight carriers;</li> <li>- Independent investors;</li> <li>- International financial institutions.</li> </ul> <p>The shareholding structure will depend on the financial resources available and the political interests of Moldova and it can be changed in the course of the NWC business development.</p>
<b>Fleet formation</b>	<p>The fleet of the NWC should be initially formed by the certain number of wagons currently owned by the CFM. At the same time the company will lease or purchase wagons from the manufacturers. If the foreign wagon operators are among the shareholders they can enter the NWC with their own rolling stock.</p> <p>Originally the fleet should be supplied with boxcars and refrigerated wagons to serve foodstuff exporters.</p> <p>NWC can also arrange the rehabilitation and the modernizing of the wagons owned by CFM that are currently out of order or outdated.</p>
<b>Functional units</b>	<p>Originally NWC must have only the office staff and the fleet. All the necessary services like wagon keeping, maintenance and repair should be purchased from the CFM.</p> <p>Later on NWC can rent or buy the depot facilities and necessary equipment and start developing the technical team of their own. It will be important in preparation to organize the National Railway Freight Company in the future.</p>
<b>Services</b>	<p>The NWC' principal service is the provision of the rolling stock either to shippers or to the CFM. When the wagons are provided to the shipper the carrier (CFM) should offer the "wagon discount" from the tariff that is the economic base for the CFM revenue. This "wagon discount" can lie between 15% and 25% of the tariff, according to the experience of other countries (e.g., Russian Federation). The actual discount can vary depending on the type of the rolling stock and market situation on the particular commodity segment.</p> <p>The company can also lend the excessive rolling stock to foreign operators on the current market conditions.</p>
<b>Future development</b>	<p>In the future when the business grows up the services can be as well offered to the foreign customers using the 1,520 standard rolling stock. In principle, the company can operate the 1,435 standard wagons as well serving the customers in Romania and other European countries.</p> <p>Serving foreign customers the NWC will financially benefit from the relatively low prices and labour costs in Moldova.</p> <p>Besides wagon leasing the NWC can provide other services like documents' filling, client-CFM payments, freight forwarding, etc.</p> <p>In any case the legal status of the NWC and the configuration of the management must prevent it from focusing on pure profit hunting since it will not match the main goals of the company described above.</p> <p>The NWC should be the base for creating the National Railway Freight Company at the certain stage of the reform (see above).</p>
<b>Pre-conditions of realization</b>	<p>The NWC can only be established after the law permits the private participation in railway business.</p>
<b>Implementation period</b>	<p>Pre-project studies and consultations between the partners can be kicked off right away, but the practical organization steps can be done only after the necessary legal base is prepared.</p>



<b>Estimated investment value for the IFI</b>	The IFI can partly finance the purchase/leasing of the rolling stock. With the average price of 35 thousand EUR for the conventional wagon and 110 thousand for a reefer wagon the starting fleet of 200 new wagons (100 each type) could cost about 14.5 Mln. Euros. The share of the IFI depends on the decided business configuration.
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<b>Project Title</b>	<b>INTERMODAL SERVICES DEVELOPMENT</b>
<b>Situation</b>	At the moment Moldova is deprived of intermodal railway services, although his kind of service is a “business card” of the modern market-oriented railway. The future development of the Moldova-EU relationship as well as the Giurgiulesti port development needs this kind of service to be developed.
<b>Main goals of the project</b>	Introduction of Intermodal railway shuttle services will: <ul style="list-style-type: none"> <li>- Help Moldova in effective general freight exchange with the EU, contributing to the Moldovan convergence and future integration into the EU;</li> <li>- Support the development of the Giurgiulesti port;</li> <li>- Support the connection of Moldova to the system of the intermodal services that is developed now in the Eastern Europe, for example – to the <i>Viking</i> intermodal train.</li> </ul>
<b>Business structure</b>	The service can be organized on the basis of the National Wagon Company with creation of the special business unit (“NWC- intermodal”) within it. To support the project the Port Giurgiulesti company can join the shareholders of the NWC and, maybe, vice-versa, because the port facilities should be modernized for providing effective handling.
<b>Services provided</b>	The principle services of the “NWC- intermodal” should be scheduled intermodal trains on two routes connecting Chisinau logistic centre with Port Giurgiulesti (first project phase) and with Ungheni transshipment point (second project phase).
<b>Scope of work</b>	To implement the project the fleet of the NWC should be supplemented by the container platforms either currently operated by the CFM or the new ones. Later the locomotives can be added to complete the full-scale transport service within the NWC and contribute to the transformation of the NWC into the National Railway Freight Company. The best option is to start from the very beginning as a legal carrier issuing the waybill of their own, although the infrastructure capacity and traction services could be purchased from the CFM.
<b>Operating region</b>	To be efficient, the “NWC- intermodal” should have the reliable terminal points in Chisinau (within the structure of the Chisinau logistic centre), in port Giurgiulesti and in Ungheni (transshipment terminal).
<b>Future development</b>	The “NWC- intermodal can become the first unit within NWC acting as a railway carrier in Moldova – other from CFM. The experience gained in the project should contribute to converting the whole NWC into the freight carrier.
<b>Pre-conditions of establishing</b>	The NWC should have the legal opportunity to act as a railway carrier. The service needs the reliable railway link to Giurgiulesti, the terminals in the service points and the legal conditions giving the private entity the right to participate in the railway activities.
<b>Implementation period</b>	The project can be started at the second “Corporatization” stage of the reform and be fulfilled during the third “Separation” stage of the railway reform.





<b>Estimated investment value for the IFI</b>	The IFI could finance the new fleet of container platforms (about 40 units for both directions seem to be enough to start the project). With the price of the container wagon at about 50 thousand EUR, 2 million EUR could be the price for the IFI participation in the project. IFI can also finance the business-structure and the business-plan preparation with the participation of the international experts.
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Project Title	UNGENI TRANSSHIPMENT TERMINAL (UTT)
<b>Situation</b>	The integration with the EU will need the growing trade between Moldova and the EU member states which will include the large enough traffic of containers, contrailers and swap-bodies on rail. At the moment the railway intermodal exchange between Moldova and the EU is a problem because of the different gauge standards. Probably in the future the 1,435-gaguge railway line will be constructed between Ungheni and the Chisinau. But at the current stage the effective border facility is necessary to make the intermodal units transhipment fast and cheap.
<b>Main goals of the project</b>	The UTT will help to: <ul style="list-style-type: none"> <li>- Develop the intermodal services in Moldova together with the Intermodal Services Development Project;</li> <li>- In the future – make Moldovan railways attractive as the entry point to the 1,520 network of the Eastern European countries for intermodal traffic.</li> </ul>
<b>Scope of work</b>	The project principally should include the site planning and equipment with 1,520 – 1,435 parallel tracks and the gantry crane to tranship the intermodal units between the parallel trains (at the first stage the reach stacker is the possible option). The site can also include the yard for intermodal units' temporary storage. If the local traffic will grow the site can be also equipped with the facilities for stripping/stuffing and trucks loading/unloading.
<b>Services provided</b>	The principal service provided should be the intermodal units' transhipment. Temporary intermodal units storage can be charged as well If the object is developed stripping and stuffing as well as warehousing can be a source of revenues.
<b>Business structure</b>	The project can be undertaken on the base of the specially set up body within the CFM structure.
<b>Pre-conditions of establishing</b>	No specific preconditions.
<b>Implementation period</b>	The project should be coordinated with other intermodal projects (Intermodal services development, Logistic centre Chisinau).
<b>Implementation location</b>	The existing site for the boogies exchange in Ungheni.
<b>Estimated investment value for the IFI</b>	The total investment volume for the object from the international experience can be about 15-20 Million EUR. The actual price can vary noticeably as a fact of land purchasing or not In any case, the IFI can finance the tracks and all the surface equipment of the object.





Project Title	LOGISTIC CENTER CHISINAU
<b>Situation</b>	Moldova has no modern logistic centres to prepare the cargo and to supply some value-added services besides transportation itself. It is an obvious decision to set up the modern intermodal logistic centre nearby Chisinau (LCC).
<b>Main goals of the project</b>	The logistic centre will help to: <ul style="list-style-type: none"><li>- Provide the intermodal services binding together the networks of road and rail on the crossroads of the main transport corridors;</li><li>- Concentrate the transport, warehousing, customs and other logistic services thus increasing the efficiency of the Moldovan logistic system;</li><li>- Connect Moldovan logistic system with the logistic network of the EU.</li></ul>
<b>Scope of work</b>	The LCC should be located on the railway-integrated site with good road access and with internal tracks, gantry cranes, container storage area and the free territory landed to logistic providers to locate their facilities. The LCC must be served by intermodal trains, primarily to Ungheni and to Giurgiulesti port. Intermodal trains from Eastern Europe (e.g., Viking) could serve the LCC as well.
<b>Business structure</b>	A special company should be set up with the participation of the CFM, Moldovan and foreign logistic providers, main shippers, independent investors, IFI.
<b>Services provided</b>	The main services of the LCC should be: <ul style="list-style-type: none"><li>- intermodal transshipment;</li><li>- intermodal units storage, stripping/stuffing</li><li>- technical services for trains and trucks;</li><li>- territory/equipment lending to logistic providers</li></ul>
<b>Pre-conditions of establishing</b>	No specific pre-conditions.
<b>Implementation period</b>	The project can be implemented right away.
<b>Implementation location</b>	The site should be identified in the Chisinau region with comfortable railway and road access with the territory of about 100,000 square meters.
<b>Estimated investment value for the IFI</b>	The total investment volume for the object from the international experience can be about 25-30 Million EUR. The actual price can vary noticeably as a fact of land purchasing or not In any case, the IFI can finance the tracks and all the surface equipment of the object as well as the project preparation by the international experts' team.