THE PROSPECTS AND CHALLENGES OF ENERGY EFFICIENT AND SUSTAINABLE FREIGHT TRANSPORT IN ARMENIA

NATIONAL EXPERIENCE OF ARMENIA
GOALS OF ARMENIA IN DEVELOPING SUSTAINABLE MULTIMODAL TRANSPORT SYSTEM

➢ The development of energy efficient, sustainable and green Freight Transport System is among the priorities of the government of Armenia.

➢ International multimodal cargo transportation is an integral element of international trade and one of the main factors of economic development of Armenia.

➢ Armenia has presented the “Crossroads of Peace” project aiming to enhance communication in the region as well as facilitate multimodal transportation of goods both via rail and road transport to Russia, Europe and Asia alike.

➢ Sustainability and protection of the environment are among the current key topics in society, the economy and of course in the transport sector trying to offer environmentally friendly transport solutions.
TRANSPORT INFRASTRUCTURE

RAILWAY AND AUTOMOBILE TRANSPORT
### TRANSPORT INFRASTRUCTURE CHARACTERISTICS, BORDER CROSSING POINTS AND TRANSIT POTENTIAL

#### RAILWAY TRANSPORT

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Communication Ways</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Railway Tracks (1,520 mm gauge)</td>
</tr>
<tr>
<td></td>
<td>General Purpose (Total)</td>
</tr>
<tr>
<td>Length</td>
<td>703,2 (782,1) km</td>
</tr>
<tr>
<td>Density</td>
<td>23,6 (26,3) km/1000 km2</td>
</tr>
<tr>
<td>Railway Stations</td>
<td>75</td>
</tr>
</tbody>
</table>
ARMENIAN RAILWAYS
NON-OPERATING RAILWAY SECTION
ARMENIA-GEORGIA-ABKHAZIA-RUSSIA
<table>
<thead>
<tr>
<th>Indicators</th>
<th>Communication Ways</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Motor Roads</strong></td>
</tr>
<tr>
<td><strong>Length</strong></td>
<td><strong>7543.2 (11306.2) km</strong></td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td><strong>253.6 (380.1) km/1000 km²</strong></td>
</tr>
<tr>
<td>Railway Stations</td>
<td></td>
</tr>
<tr>
<td><strong>Intergovernmental Importance</strong></td>
<td><strong>1753.1 km</strong></td>
</tr>
<tr>
<td>Republican Importance</td>
<td><strong>2000.1 km</strong></td>
</tr>
<tr>
<td>Local Importance</td>
<td><strong>3790 km</strong></td>
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</tbody>
</table>
The Armenian railway network consists of 782 km 100% electrified line, mostly single track.

The 782 km 1,520 mm gauge network is electrified at 3 kV DC.

The railways in Armenia are operated by South Caucasus Railway of Russian Railways.

Except with Georgia, all international railway links between Armenia and its neighbors have been closed since 1993.

According to preliminary data from Russian Railways, freight traffic at South Caucasus Railway is expected to increase to up to 30 million tons per annum.

Since independence, Armenia has been developing its internal highway network.

Armenia connects to European road networks via the International E-road network through various routes such as; European route E117, European route E691, European route E001 and European route E60. Armenia also connects to the Asian Highway Network through routes AH81, AH82 and AH83.
E-NETWORK IN CAUCASUS REGION
West Europe – West China - 8445km

Trans-Siberian Railway - 11 500 km
14 days

Sea route on Suez Canal - 24 000 km

to 45 days
CARGO VOLUMES STATISTICS

SHARE OF CARGO TRANSPORTATION BY TYPES OF TRANSPORT
Total – 18-20 mln tons

- Motor Vehicles: 70%
- Railroad: 18.10%
- Air Transport: 11.80%
- Trunk Pipeline: 0.10%

SHARE OF CARGO TURNOVER BY TYPES OF TRANSPORT
Total – 5 bn tons-km

- Motor Vehicles: 63.30%
- Railroad: 16.00%
- Air Transport: 21%
- Trunk Pipeline: 0.00%
SHARE OF EXPORTED, IMPORTED AND INTRAREPUBLICAN FREIGHTS TRANSPORTATION

RAILWAY

- Exported: 66.40%
- Imported: 13%
- Intrarepublican: 20.80%

AUTOMOBILE TRANSPORT

- Exported: 67.60%
- Imported: 7%
- Intrarepublican: 25.10%
STRUCTURE OF SHIPMENTS BY RAILWAY TRANSPORT

- Mineral Building Materials: 9.10%
- Grain: 8.5%
- Non-Ferrous Metal Ore: 1.10%
- Other: 81.30%
THE WAYS OF DEVELOPING ENERGY EFFICIENT AND SUSTAINABLE MULTI-MODAL TRANSPORT SYSTEM

TECHNOLOGICAL
- Coordination Between Transport Modes and Cargo Lifting Machines
- Transport Scheduling and Timetabling
- Provide Cargo Terminals with the Enough Quantity of Cargo-Handling Machines and Equipment
- Developing Direct Shipment Strategy and Direct Transloading Implementation

TECHNICAL
- Developing of Specialized Transport Fleet
- Developing Innovative Technologies in Transport
- Development of Integrated Container System
- Standardization and Uniformity

ECONOMICAL
- Share of Cargo Volumes between Modes of Transport
- Creating a Long-Term Development Programs for the Modes of Transport
- Creation of Integrated Maintenance and Estimating Indicators for the Types of Transport
TRANSPORT PROJECTS

RAILWAY AND AUTOMOBILE TRANSPORT
TRANSPORT INFRASTRUCTURE

- The "North-South Road Corridor Investment Program" is a major infrastructure project which aims at connecting the southern border of Armenia with its northern by means of a 556 km-long Meghri-Yerevan-Bavra highway upgrading it up to 463 km-long 1st category high-speed carriageway section with a speed limit of 100-110 km/hour enabling to cross the mentioned section within the decreased 4.5-5 hours period instead of current 9.5-10 hours increasing the comfortability and safety by ensuring the fulfilment of the Project goal in regards of making the North-South Road a transit carriageway for passenger and cargo transportation from the East to the West within scope of TRACECA and Silk Road Projects.

- Its design envisages concrete pavement 4-lane express highway.

- It is a major US $2,0-2,5 billion infrastructure project funded by the Asian Development Bank, European Investment Bank and the Eurasian Development Bank. When completed, the highway will provide access to European countries via the Black Sea. It could also eventually interconnect the Black Sea ports of Georgia with the major ports of Iran, thus positioning Armenia in a strategic transport corridor between Europe and Asia.
**TRANSPORT INFRASTRUCTURE**

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THE NORTH-SOUTH ROAD CORRIDOR
Vanadzor – Dilijan (Fioletovo) Railway Project - 47 km should be newly constructed. It will provide a significant shortcut (about 70 km) for the railway route between Yerevan and the Georgian border/Tbilisi as well as in case of opening the border with Turkey

New railroad project with Iran (approximately $3 billion)

Rehabilitation of previously existing railroad connecting Armenia with Azerbaijan as well as existing railroad Gyumri - Kars (Turkey)
NEW LOGISTICS CENTERS

➢ By 2026, Armenia will have established three logistics centers to transport and store cargo from Europe, the Eurasian Union and Iran.

➢ One of these parks will be located in Gyumri, it will be designed for goods from Europe and the EAEU. The other two, in Ararat and in the south of the country, will be mainly for Iranian companies.

➢ South-Caucasian railways intends to create international logistics center on Armenian-Turkish border with 3 scenarios of development
ARMENIA IS SET TO HAVE 3 LARGE-SCALE LOGISTICS CENTER IN GYUMRI, ARARAT AND KAPAN
The objective of the center will be the formation of a system of transport for most optimal route, in the shortest period of time, with minimal costs, as well as with minimal harm to the delivery object.
INTERNATIONAL TRANSPORT CORRIDORS

➢ Armenia has signed an agreement on developing multimodal transport as part of the TRASECA project.
➢ The agreement aims at improving cooperation amongst transport organizations, multimodal transport operators, ferrymen, shippers, legal entities and individuals. The document specifies the rights and responsibilities of participants.
➢ Launched by the European Commission in 1993, TRASECA aims at boosting Europe-Caucasus-Asia transport corridor, creating alternative transport routes and using infrastructures available for shipment.
"Persian Gulf-Black Sea" International Transport Corridor

Elaborating new Europe-India-Iran international transport corridor via Armenia aiming to organize a multimodal high-speed route of international cargo transportation via Armenia.

The "Persian Gulf-Black Sea" international transport corridor with the participation of Armenia will connect the countries of East Asia, India and Iran with Europe through Georgia and the Black Sea and in the opposite direction as an alternative to the North-South international transport corridor.

The project will promote the development of multimodal transportation and increase Armenia's transit function in international cargo transportation on the Europe-Asia route.
"Persian Gulf-Black Sea" International Transport Corridor

The corridor project starts from the Persian Gulf and Southern Iran, heads north across the country, and then continues to Armenia, from where it reaches the Georgian ports of Poti and Batumi in the Black Sea. From there, Ro-Ro ships cross the Black Sea to the Bulgarian ports of Burgas and Varna, after which the goods are again sent by road to Greece and on to the European Union.

The PBTC initiative covers vast areas of interest such as expedition of international cargo movements, transit standardization, and reduction of transportation expending and simplification of procedures.
1. Create request
2. Fast price information with Instant Pricing
3. Book transport in CONNECT
4. Advice via automatic notifications
5. Transport monitoring with real time visibility and estimated time of arrival
6. Receive or access freight documents and reports digitally with the automatic notifications
Developing **digital transport corridor project** will allow to significantly reduce transportation costs within Eurasian Economic Union.

Goods traceability through **electronic digital seals** will ensure an unhindered passage of goods through customs check points. For example, an Armenian product that received a similar seal will no longer be stopped at the customs check point in Lars border crossing on the Russian-Georgian border.

"This means that the **tracking system through electronic-digital methods** will allow to track one’s cargo throughout the transit territory, and in the future will substantially simplify customs, transport, veterinary and phytosanitary supervision.

**Armenia optimizes control at state border and introduces the principle of "one window"** The control of various state bodies at the border will be optimized and the "one window" principle will be introduced.

An **electronic toll collection system** is being introduced in the republic.
EU launched a program to support the digital economy and society in Armenia. The program aims to establish a governmental interoperability platform, enabling simplified and standardized secure connectivity between all public administration organizations in Armenia, and also introduce a one-stop-shop solution for the country’s border crossing points.

The project has a focus on tangible results and strategic interventions designed to modernize and enhance the Eastern Partnership region’s trade and logistics frameworks, steering them towards sustainable growth and digital integration in alignment with EU standards and environmental goals.

10 EU directives in the field of the road transport regarding traffic safety, intelligent transportation systems and hazmat hauling are in the process to be integrated into legislation system of Armenia.

GREEN TRANSPORT

FUEL CONSUMPTION STRUCTURE IN ARMENIA

- **CNG**: 65.6%
- **Diesel oil**: 14.4%
- **Gasoline**: 19.8%
- **LPG**: 0.2%

Transport: 100%

- **Road Transportation**: 98.4%
- **Off-road**: 1.6%
The brand "GREEN TRANSPORT" stands for the following

<table>
<thead>
<tr>
<th>Increased use of transport partners with environmentally friendly equipment (EURO 5/6)</th>
</tr>
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<tbody>
<tr>
<td>Continual expansion of our combined transport network road/rail</td>
</tr>
<tr>
<td>Optimization of transport planning - further reduction of empty mileage (round trip philosophy)</td>
</tr>
<tr>
<td>&quot;Commitment&quot; to shift road transports to rail mode</td>
</tr>
<tr>
<td>Transition process toward electric vehicles</td>
</tr>
<tr>
<td>Solutions to reduce air pollution is to replace internal combustion engine-equipped vehicles, step-by-step, with electric vehicles (EVs) including electrification of public transport, passenger cars, and trucks</td>
</tr>
<tr>
<td>Increasing the efficiency of public transport, using renewable energy sources, and stimulation and support in the uptake of electric vehicles are envisaged by the Nationally determined contribution 2021-2030 of the Republic of Armenia to the Paris Agreement 2</td>
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THANK YOU