



D3 - FINAL REPORT SCENARIOS, TRAFFIC FORECASTS AND ANALYSIS OF TRAFFIC FLOWS INCLUDING COUNTRIES NEIGHBOURING THE EUROPEAN UNION





Submitted to:

European Commission

Submitted by:

NEA Transport research and training

Reference:

R20060028/30203000/avi/rlo

Status:

final

Rijswijk, The Netherlands, December 2005

D3 - Final Report

Scenarios, traffic forecasts and analysis of traffic flows including countries neighbouring the European Union ${\bf E}_{\bf p}$



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Scenarios, traffic forecasts and analysis of traffic flows including countries neighbouring the European Union ${f C}$



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1 INTRODUCTION

This is the final report of the project "Scenarios, traffic forecasts and analysis of traffic flows including countries neighbouring the European Union: (EUN STAT). This report contains first a overview of the main assumptions considered for the estimation of year 2020 trade volumes and transport demand, mainly the socio-economic trends and development of transport infrastructure, including a critical assessment of the completeness and reliability of data. Secondly, the report contains the forecasts results for year 2020, based on two scenarios: reference scenario and break-up economic trends.

The following countries and regions are considered in relation with European Union: Albania, Algeria, Armenia, Palestinian authority, Azerbaijan, Belarus, Bosnia & Herzegovina, Croatia, Egypt, FYROM, Georgia, Israel, Jordania, Lebanon, Libya, Morocco, Moldova, Norway, Russia, Serbia and Montenegro, Switzerland, Syria, Tunisia, Turkey, Ukraine.

The countries in the scope of the study are subdivided into three "country groups" as follows:

Country group I: Countries, which have been considered in previous studies and for which the status of data availability (e.g. networks, traffic count data) and transport modelling is at the same level as for EU countries: Switzerland, Norway.

Country group II: Countries, for which the status of data availability is lower than for EU countries, but – for representing important transit links between EU countries – their transport flows were in the scope of transport modelling for previous EU studies like TEN-STAC: Albania, Belarus, Bosnia and Herzegovina, Croatia, FYROM, Moldova, Russia (Western part), Serbia and Montenegro, Ukraine, as well as the European part of Turkey.

Country group III: Countries, which have not been in the scope of the consortium's transport modelling system to the extension of countries belonging to group I or group II.

As it has been specified in the Inception report, following the kick-off meeting of 13 January 2005, the scope of the project has been detailed by identifying the main focus of the assessment of analysis, as follows:

- 1. Scope of the project: priority transport axes EU neighbouring countries.
- 2. There are 5 (five) target regions:
 - a. N-E Europe
 - b. Russia, Ukraine, Belarus, Moldova
 - c. Eastern Mediterranean
 - d. Western Mediterranean
 - e. S-E Europe and Turkey
- 3. The EUN-STAT project is focused more on **a**, **b** and **e**. The Mediterranean area is extensively treated in MEDA projects.



2 TRADE AND TRANSPORT DATA

2.1 Description of the territorial units / zoning system

Territorial units considered in the project are one of the basic elements for the description of the socioeconomic information, of the trade and of the transport data, and, consequently, for the traffic flows forecasted on the infrastructure networks.

The socio-economic, trade and transport data are associated to the territorial units. Assignment of the traffic flows on the infrastructure networks is based on the transport OD's by transport mode and on the model infrastructure networks.

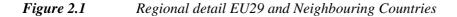
The idea was to find the most appropriate match between the available socio-economic data, forecasting model structure and infrastructure networks in order to have a high sensitivity and reliability of the final results.

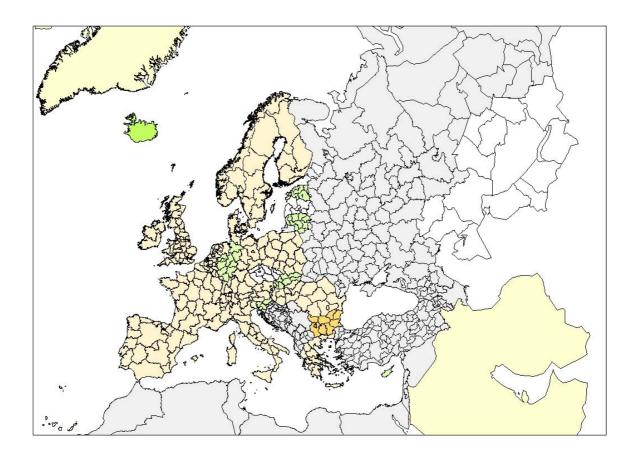
In most of the EU Neighbouring countries, no detailed regional information of the international freight flows is available. This regional information is needed in order to make good traffic assignments. In order to obtain this regional information, population information and GDP information is used. Table 2.1 present the source of information considered to add the regional detail in the EU Neighbouring countries. In Figure 2.1, the regions are presented graphically.



 Table 2.1
 Number of regions in the EU Neighbouring Countries

| Country | Number of regions | Source of regional information |
|---------------------|-------------------|---|
| Albania | 7 | NEAC |
| Armenia | 11 | Population (TRACECA study) |
| Azerbaijan | 3 | Population (http://www.world-gazetteer.com) |
| Belarus | 6 | Population (source NESTEAR) |
| Bosnia &Herzegovina | 10 | NEAC |
| Croatia | 20 | Population (source NESTEAR) |
| FYROM | 5 | NEAC |
| Georgia | 11 | Population (TRACECA study) |
| Israel | 1 | Country level |
| Kazakhstan | 16 | NEAC |
| Lebanon | 1 | Country level |
| Moldova | 2 | Population (http://www.world-gazetteer.com) |
| Russia | 89 | NEAC |
| Serbia & Montenegro | 4 | Population (source NESTEAR) |
| Syria | 1 | Country level |
| Turkey | 89 | National data |
| Turkmenistan | 1 | Country level |
| Ukraine | 25 | Population (TRACECA study) |
| Uzbekistan | 1 | Country level |





2.2 Description of the trade and transport data

The EUN-STAT database is based upon the NEAC database. The improvements and additional information obtained in the ETIS BASE project has been added to the NEAC database. In the NEAC database all freight flows for the EU25 countries, including Norway and Switzerland are described on a regional detail. In additional to this information, additional national data has been used for the non-EU25 countries, to update the EUN-STAT database. Also information from the TRACECA study has been considered. The TRACECA database includes detailed international freight flows in the EU neighbouring countries. Finally UN Comtrade data has been considered for all countries which still are not covered.

The structure of the transport database is built by considering the following elements:

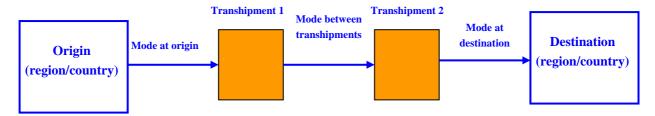
- Origin of transport flows
- Transport mode at origin
- Transhipment location no. 1 (region of the port/terminal)
- Transport mode between transhipments
- Transhipment location no. 2 (region of the port/terminal)
- Transport mode at destination



• Destination of the transport flow as shown in the figure hereunder.

The main gap that had to be covered in the transport database is represented by port/terminal information, which is very difficult to be obtained and when it is available it is not detailed enough for a proper representation of the transport flows. Through modelling gaps have been partly covered, but still improvements could be made in the future if proper information could be obtained.

Figure 2.2 Overview transport chain in the EUN-STAT database



The following commodity groups are included in the EUN-STAT database:

Table 2.2Commodity groups 1 digit (NSTR with crude oil separate) in the EUN-STATdatabase

| Code | Commodity group |
|------|---------------------------------|
| 0 | Agricultural products |
| 1 | Foodstuffs |
| 2 | Solid mineral fuels |
| 3 | Crude oil |
| 4 | Ores, metal waste |
| 5 | Metal products |
| 6 | Building minerals & material |
| 7 | Fertilisers |
| 8 | Chemicals |
| 9 | Machinery & other manufacturing |
| 10 | Petroleum products |

Scenarios, traffic forecasts and analysis of traffic flows including countries neighbouring the European Union



The following transport modes are included in the EUN-STAT database:

 Table 2.3
 Transport Modes in the EUN-STAT database

| Code | Mode |
|------|------------------|
| 1 | Road |
| 2 | Rail |
| 3 | Inland Waterways |
| 4 | Sea |
| 8 | Other |
| 9 | Unknown |

The base year of the EUN-STAT freight database is the year 2000. The EUN-STAT database includes all freight flows from the EU25 and Norway, Switzerland, Bulgaria and Romania towards the EU Neighbouring Countries. The Mediterranean area is extensively treated in MEDA projects. The EUN-STAT project is not focus on theses countries. However, it will be helpful if EUN-STAT could offer some more information on this area. The following EU Neighbouring Countries are included in the EUN-STAT database.

- Albania, Bosnia & Herzegovina, Croatia, FYROM, Serbia & Montenegro
- Georgia, Armenia, Azerbaijan
- Belarus, Ukraine, Moldova, Russia, Kazakhstan, Turkmenistan, Uzbekistan
- Turkey, Israel, Lebanon, Syria

The EUN-STAT database is based upon the NEAC database. However, the ETIS project results in improvement and additional information which has been used to update the EUN-STAT database. The base year 2000 of the ETIS project is currently final. ETIS reference database is focused on EU25 countries, and the NEAC database considered for EUN-STAT considers also the accession countries Romania and Bulgaria, at NUTS2 territorial level, and the Neighbouring countries at regional level as it is shown in Table 2.1.

The results presented in this chapter are final results.

Total volume of goods imported by the EUN countries from/to EU29 is shown in the tables hereunder, by transport mode at destination/origin.



Table 2.4 Total imports EUN from EU29, by transport mode at destination, base year 2000, thousand tonnes

| EUN country | Road | Rail | Inland | Sea | Other | Unknown | Total | | |
|-----------------------|--------|--------|-----------|--------|-------|---------|---------|--|--|
| | | | waterways | | | | | | |
| | | | | | | | | | |
| Albania | 707 | 29 | 0 | 1,753 | 3 | 0 | 2,492 | | |
| Russia | 4,655 | 5,518 | 491 | 10 | 2,953 | 0 | 13,627 | | |
| Ukraine | 1,680 | 3,046 | 59 | 535 | 258 | 247 | 5,825 | | |
| Belarus | 678 | 1,075 | 3 | 40 | 32 | 91 | 1,919 | | |
| FYROM | 1,557 | 1,122 | 0 | 92 | 95 | 124 | 2,991 | | |
| Bosnia & Hercegowina | 989 | 100 | 13 | 177 | 83 | 0 | 1,363 | | |
| Croatia | 3,341 | 1,332 | 55 | 1,426 | 46 | 0 | 6,200 | | |
| Serbia and Montenegro | 1,476 | 762 | 93 | 655 | 1,105 | 0 | 4,090 | | |
| Moldavia | 204 | 83 | 3 | 4 | 545 | 11 | 849 | | |
| Turkey | 3,471 | 848 | 0 | 17,036 | 85 | 0 | 21,441 | | |
| Rest Europe | 2,001 | 326 | 13 | 4,535 | 99 | 0 | 6,973 | | |
| Morocco | 331 | 26 | 91 | 7,459 | 125 | 0 | 8,032 | | |
| Algeria | 192 | 55 | 16 | 6,730 | 245 | 0 | 7,238 | | |
| Tunisia | 242 | 68 | 29 | 6,749 | 214 | 0 | 7,303 | | |
| Libia | 50 | 28 | 143 | 4,139 | 30 | 0 | 4,391 | | |
| Egypt | 227 | 60 | 26 | 6,303 | 1,015 | 0 | 7,631 | | |
| Syria | 106 | 34 | 3 | 2,100 | 206 | 1 | 2,450 | | |
| Lebanon | 104 | 34 | 10 | 2,846 | 116 | 0 | 3,110 | | |
| Israel | 358 | 131 | 83 | 6,310 | 465 | 0 | 7,348 | | |
| Georgia | 49 | 14 | 0 | 246 | 279 | 0 | 589 | | |
| Armenia | 10 | 41 | 0 | 181 | 1 | 0 | 232 | | |
| Azerbajan | 22 | 20 | 0 | 97 | 4 | 0 | 143 | | |
| ALL EUN countries | 22,452 | 14,751 | 1,131 | 69,426 | 8,002 | 476 | 116,237 | | |



Table 2.5 Total exports EUN to EU29, by transport mode at origin, base year 2000, thousand tonnes

| EUN country | Road | Rail | Inland waterways | Sea | Other | Unknown | Total | | |
|--------------------------|--------|---------|---------------------|---------|---------|---------|---------|--|--|
| | | | | | | | | | |
| Albania | 58 | 0 | 0 | 120 | 0 | 0 | 179 | | |
| Russia | 17,346 | 108,963 | 17,892 | 1,121 | 83,592 | 0 | 228,914 | | |
| Ukraine | 6,517 | 17,940 | 941 | 3,463 | 2,036 | 0 | 30,897 | | |
| Belarus | 1,082 | 3,239 | 31 | 405 | 88 | 136 | 4,981 | | |
| FYROM | 432 | 118 | 16 | 1 | 14 | 334 | 915 | | |
| Bosnia & Hercegowina | 443 | 5 | 10 | 105 | 40 | 0 | 603 | | |
| Croatia | 3,641 | 1,745 | 115 | 3,884 | 13 | 0 | 9,399 | | |
| Serbia and Montenegro | 505 | 200 | 136 | 274 | 241 | 0 | 1,357 | | |
| Moldavia | 145 | 30 | 13 | 20 | 338 | 159 | 705 | | |
| Turkey | 2,849 | 359 | 0 | 15,038 | 70 | 0 | 18,315 | | |
| Rest Europe | 992 | 37 | 1 | 334 | 12 | 0 | 1,376 | | |
| Morocco | 451 | 20 | 151 | 8,847 | 246 | 0 | 9,714 | | |
| Algeria | 1,062 | 18 | 34 | 42,418 | 10,990 | 0 | 54,522 | | |
| Tunisia | 257 | 4 | 2 | 4,165 | 184 | 0 | 4,613 | | |
| Libia | 1,747 | 8 | 21 | 49,426 | 9,537 | 0 | 60,739 | | |
| Egypt | 89 | 109 | 7 | 9,789 | 156 | 0 | 10,150 | | |
| Syria | 17 | 2 | 14 | 8,192 | 7,299 | 0 | 15,525 | | |
| Lebanon | 10 | 1 | 0 | 624 | 3 | 0 | 638 | | |
| Israel | 198 | 29 | 45 | 5,119 | 106 | 0 | 5,496 | | |
| Georgia | 20 | 2 | 0 | 815 | 5 | 0 | 843 | | |
| Armenia | 4 | 0 | 0 | 29 | 0 | 0 | 33 | | |
| Azerbajan | 10 | 57 | 0 | 2,858 | 1,153 | 0 | 4,078 | | |
| ALL EUN countries | 37,877 | 132,887 | 19,430 | 157,047 | 116,122 | 630 | 463,993 | | |

The total trade of the base year 2000 from the EU25 + NO + CH + BU +RO (EU29) towards EU Neighbouring countries and vice versa is shown in Figure 2.3. The traffic flows on the rail and road networks from the EU25 + NO + CH + BU +RO (EU29) towards EU Neighbouring countries and vice versa are shown in the Figure 2.4 and Figure 2.5 hereunder.



Figure 2.3 EU29 in relation with EU neighbouring countries transport mode: road, rail, sea; all trade flows, base year 2000

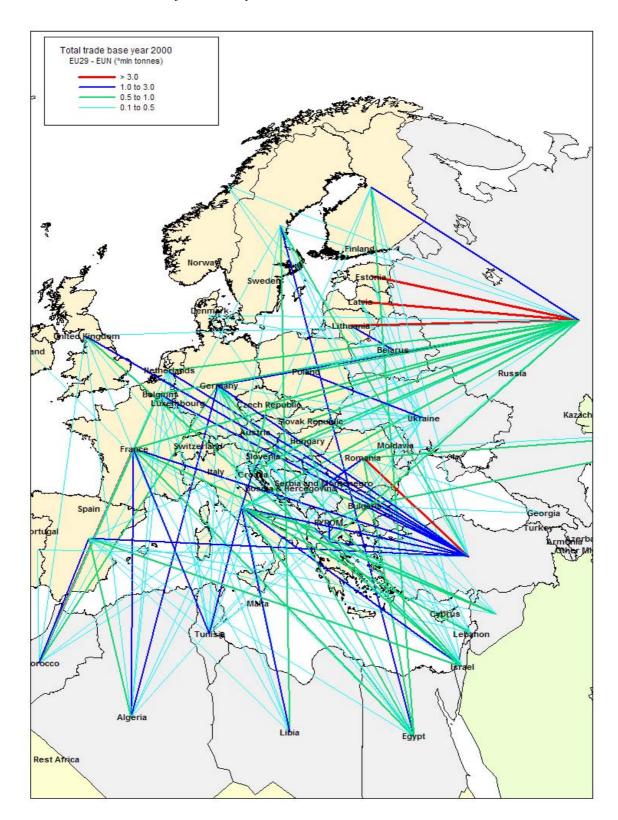


Figure 2.4 International Rail freight flows in 2000 between EU29 and EUN

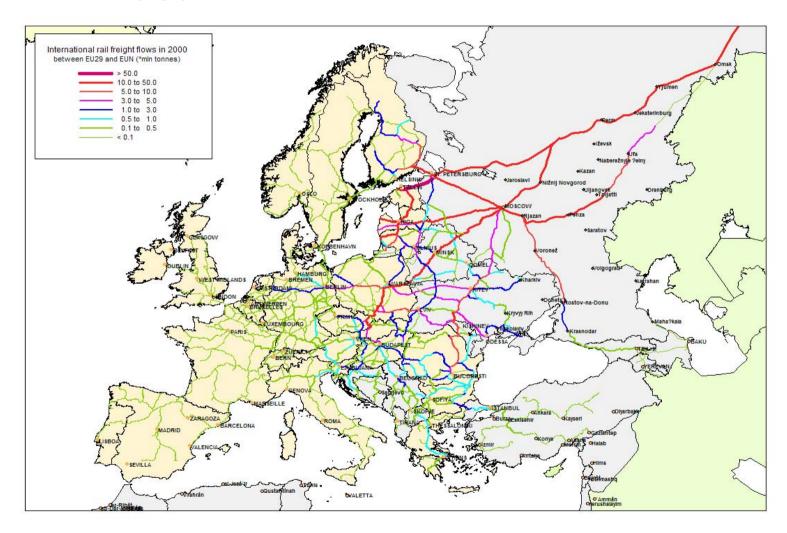
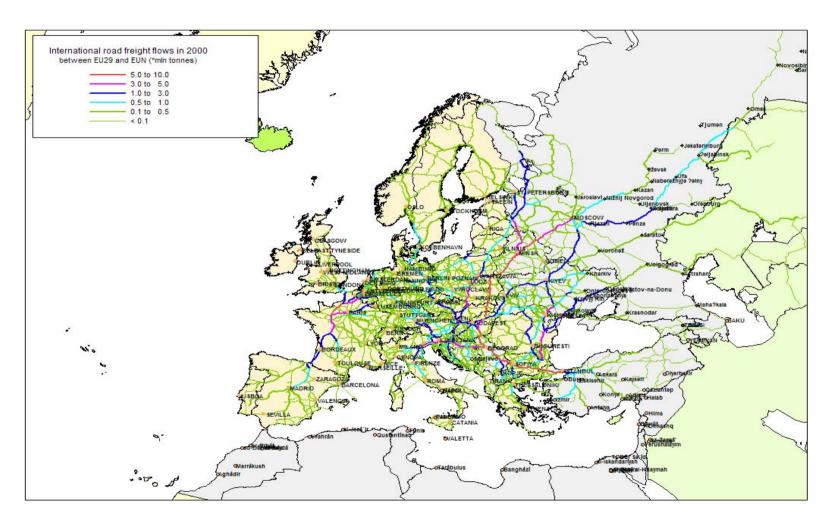


Figure 2.5 International Road freight flows in 2000 between EU29 and EUN





3 DESCRIPTION OF SCENARIOS

3.1 General description of scenarios

There are two scenarios considered for estimating the trade, transport and traffic flows for year 2020. The main assumptions for scenarios are as follows:

A. Reference scenario:

- basic socio-economic trends as considered in the TEN-STAC study, and as recommended by the PRIMES project;
- full implementation of infrastructure projects, as provided by DG-TREN.

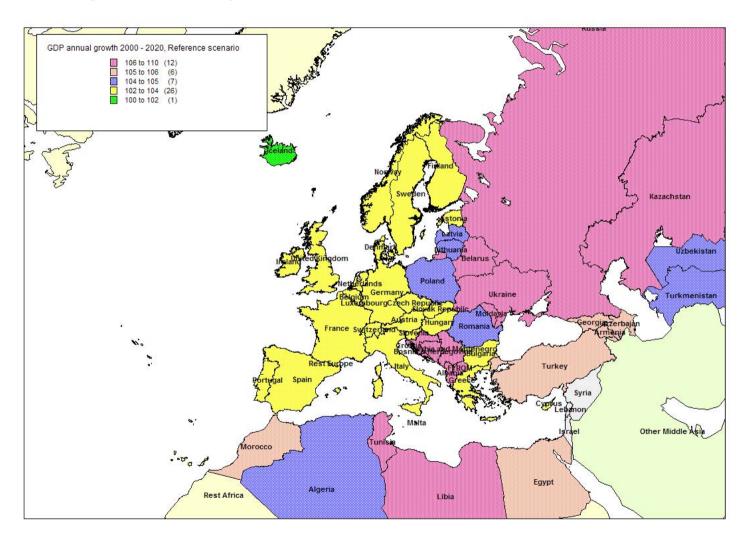
B. Scenario 2:

- extra economic growth for the Neighbouring countries, up to maximum 6% annual growth of the GDP;
- full implementation of infrastructure projects, as provided by DG-TREN.

3.2 Socio-economic development

The socio-economic trends of both EU29 and Neighbouring countries are considered for estimating the expected trade demand for year 2020. The Reference scenario considers the basic socio-economic trends as described by TEN-STAC / PRIMES studies, as shown in the figure hereunder.

Figure 3.1 GDP annual growth 2000 – 2020, Reference scenario





3.3 Infrastructure assessment

Consideration of infrastructure projects submitted to the European Commission in the EUN-STAT rail and road network models

Scope of the infrastructure projects

The EUN-STAT consortia has been provided by the European Commission with infrastructure projects by following countries in the scope of the EUN-STAT study:

- Armenia (AM)
- Azerbaijan (AZ)
- Belarus (BY)
- Bosnia-Herzegovina (BA)
- Croatia (HR)
- Macedonia (MK)
- Russia (RU)
- Serbia (YU)/(CS)
- Ucraine (UA)
- Turkey (TR)

The type of infrastructure measures submitted to the European Commission embraces rail and road infrastructure, as well as investments in ports.

Documentation of infrastructure projects in the network models

The EUN-STAT network models for rail and road have been appended by two additional columns, "country_code" and "proj_no". Each priority project submitted was labelled in the column "country_code" by its country code, that submitted the infrastructure measure to the European Commission. In the column "proj_no" the projects submitted by each country were numbered.

The allocation of numbers to projects as well as the scope of infrastructure measurements implemented into the EUN-STAT network models are corresponding to the description of the projects as it has been agreed with the European Commission.



4 TRADE AND TRANSPORT FORECASTS 2020

4.1 Trade forecasts 2020

Trade forecasts for year 2020, for the Reference scenario and for Scenario 2, have considered the basic elements as described in chapter 3. Total volumes of goods imported/exported by the EUN countries from/to EU29 are shown in the tables hereunder, by transport mode at destination/origin.



Table 4.1Total imports EUN from EU29, by transport mode at destination, Reference scenario2020, thousand tonnes

| EUN country | Road | Rail | Inland waterways | Sea | Other | Unknown | Total |
|-----------------------|--------|--------|---------------------|---------|--------|---------|---------|
| | | | waterways | | | | |
| Albania | 3,310 | 98 | 0 | 5,897 | 23 | 0 | 9,329 |
| Russia | 13,176 | 12,438 | 1,244 | 26 | 6,429 | 0 | 33,313 |
| Ukraine | 5,384 | 4,760 | 165 | 1,871 | 558 | 784 | 13,523 |
| Belarus | 1,801 | 2,265 | 7 | 114 | 114 | 244 | 4,544 |
| FYROM | 4,082 | 2,043 | 2 | 290 | 313 | 340 | 7,069 |
| Bosnia & Hercegowina | 2,437 | 251 | 40 | 484 | 325 | 1 | 3,538 |
| Croatia | 7,312 | 2,574 | 94 | 2,221 | 125 | 0 | 12,326 |
| Serbia and Montenegro | 3,587 | 1,496 | 226 | 1,401 | 2,717 | 0 | 9,427 |
| Moldavia | 583 | 220 | 12 | 9 | 1,218 | 25 | 2,068 |
| Turkey | 9,489 | 2,366 | 0 | 42,547 | 261 | 0 | 54,662 |
| Rest Europe | 4,539 | 818 | 44 | 10,148 | 235 | 0 | 15,785 |
| Morocco | 689 | 47 | 166 | 12,138 | 269 | 0 | 13,310 |
| Algeria | 362 | 91 | 31 | 11,877 | 448 | 0 | 12,809 |
| Tunisia | 504 | 106 | 54 | 10,613 | 427 | 0 | 11,704 |
| Libia | 91 | 41 | 329 | 6,242 | 65 | 0 | 6,769 |
| Egypt | 408 | 127 | 52 | 10,377 | 1,826 | 0 | 12,789 |
| Syria | 294 | 132 | 13 | 4,903 | 639 | 3 | 5,984 |
| Lebanon | 259 | 95 | 31 | 5,795 | 292 | 1 | 6,473 |
| Israel | 985 | 377 | 246 | 15,100 | 1,401 | 0 | 18,110 |
| Georgia | 25 | 9 | 0 | 171 | 3 | 0 | 208 |
| Armenia | 14 | 1 | 0 | 304 | 1 | 0 | 320 |
| Azerbajan | 33 | 22 | 0 | 89 | 6 | 0 | 150 |
| ALL EUN countries | 59,364 | 30,377 | 2,756 | 142,618 | 17,696 | 1,399 | 254,211 |



Table 4.2 Total exports EUN to EU29, by transport mode at origin, Reference scenario 2020, thousand tonnes

| EUN country | Road | Rail | Inland | Sea | Other | Unknown | Total |
|-----------------------|---------|---------|-----------|---------|---------|---------|---------|
| | | | waterways | | | | |
| Albania | 264 | 0 | 0 | 804 | 0 | 0 | 1,068 |
| Russia | 43,189 | 249,530 | 43,286 | 4,849 | 134,476 | 0 | 475,330 |
| Ukraine | 31,308 | 52,041 | 2,808 | 9,648 | 7,654 | 0 | 103,459 |
| Belarus | 2,099 | 6,656 | 101 | 790 | 255 | 411 | 10,312 |
| FYROM | 983 | 350 | 109 | 1 | 31 | 1,036 | 2,511 |
| Bosnia & Hercegowina | 937 | 15 | 34 | 275 | 128 | 0 | 1,389 |
| Croatia | 6,217 | 3,088 | 150 | 4,565 | 27 | 0 | 14,048 |
| Serbia and Montenegro | 895 | 492 | 317 | 572 | 465 | 0 | 2,742 |
| Moldavia | 202 | 54 | 36 | 46 | 492 | 285 | 1,114 |
| Turkey | 8,345 | 822 | 0 | 31,867 | 199 | 0 | 41,233 |
| Rest Europe | 1,644 | 97 | 3 | 536 | 29 | 0 | 2,308 |
| Morocco | 919 | 36 | 183 | 12,076 | 275 | 0 | 13,488 |
| Algeria | 1,144 | 18 | 47 | 54,171 | 12,511 | 0 | 67,892 |
| Tunisia | 380 | 9 | 5 | 5,229 | 206 | 0 | 5,829 |
| Libia | 1,763 | 8 | 28 | 53,780 | 9,641 | 0 | 65,220 |
| Egypt | 167 | 113 | 12 | 11,954 | 316 | 0 | 12,562 |
| Syria | 54 | 5 | 19 | 10,530 | 7,348 | 1 | 17,956 |
| Lebanon | 35 | 3 | 0 | 1,313 | 12 | 0 | 1,363 |
| Israel | 468 | 75 | 104 | 12,685 | 282 | 0 | 13,614 |
| Georgia | 21 | 4 | 0 | 806 | 5 | 0 | 836 |
| Armenia | 5 | 0 | 1 | 37 | 0 | 0 | 43 |
| Azerbajan | 17 | 1 | 0 | 3,028 | 1,147 | 0 | 4,194 |
| ALL EUN countries | 101,055 | 313,417 | 47,245 | 219,561 | 175,499 | 1,733 | 858,510 |



Table 4.3 Total imports EUN from EU29, by transport mode at destination, Scenario 2, 2020, thousand tonnes

| EUN country | Road | Rail | Inland waterways | Sea | Other | Unknown | Total | | |
|-----------------------|--------|--------|---------------------|---------|--------|---------|---------|--|--|
| | | | | | | | | | |
| Albania | 3,314 | 94 | 0 | 5,897 | 23 | 0 | 9,329 | | |
| Russia | 17,049 | 16,873 | 2,328 | 39 | 10,066 | 0 | 46,355 | | |
| Ukraine | 6,243 | 5,112 | 170 | 1,928 | 606 | 1,165 | 15,223 | | |
| Belarus | 2,331 | 2,846 | 7 | 114 | 143 | 449 | 5,890 | | |
| FYROM | 4,029 | 2,096 | 2 | 290 | 313 | 340 | 7,069 | | |
| Bosnia & Hercegowina | 2,427 | 259 | 42 | 484 | 325 | 1 | 3,538 | | |
| Croatia | 10,133 | 3,197 | 151 | 3,510 | 198 | 0 | 17,190 | | |
| Serbia and Montenegro | 4,895 | 1,619 | 303 | 2,236 | 2,781 | 0 | 11,833 | | |
| Moldavia | 718 | 235 | 14 | 9 | 1,222 | 34 | 2,233 | | |
| Turkey | 9,662 | 2,379 | 0 | 44,904 | 266 | 0 | 57,211 | | |
| Rest Europe | 4,539 | 818 | 44 | 10,148 | 235 | 0 | 15,785 | | |
| Morocco | 689 | 47 | 166 | 12,138 | 269 | 0 | 13,310 | | |
| Algeria | 362 | 91 | 31 | 11,877 | 448 | 0 | 12,809 | | |
| Tunisia | 504 | 106 | 54 | 10,613 | 427 | 0 | 11,704 | | |
| Libia | 91 | 41 | 329 | 6,242 | 65 | 0 | 6,769 | | |
| Egypt | 408 | 127 | 52 | 10,378 | 1,826 | 0 | 12,790 | | |
| Syria | 308 | 133 | 13 | 5,691 | 639 | 3 | 6,788 | | |
| Lebanon | 297 | 100 | 35 | 6,733 | 293 | 1 | 7,459 | | |
| Israel | 1,035 | 407 | 271 | 17,231 | 1,407 | 0 | 20,352 | | |
| Georgia | 42 | 13 | 0 | 274 | 5 | 0 | 335 | | |
| Armenia | 23 | 2 | 0 | 477 | 2 | 0 | 503 | | |
| Azerbajan | 56 | 34 | 0 | 143 | 11 | 0 | 244 | | |
| ALL EUN countries | 69,156 | 36,629 | 4,013 | 151,354 | 21,572 | 1,993 | 284,717 | | |



Table 4.4 Total exports EUN to EU29, by transport mode at origin, Scenario 2, 2020, thousand tonnes

| EUN country | Road | Rail | Inland waterways | Sea | Other | Unknown | Total | | |
|-----------------------|---------|---------|---------------------|---------|---------|---------|---------|--|--|
| | | | | | | | | | |
| Albania | 264 | 0 | 0 | 804 | 0 | 0 | 1,068 | | |
| Russia | 48,423 | 269,112 | 47,467 | 5,274 | 140,190 | 0 | 510,467 | | |
| Ukraine | 31,822 | 52,430 | 2,810 | 9,924 | 7,655 | 0 | 104,640 | | |
| Belarus | 2,959 | 7,032 | 153 | 790 | 256 | 625 | 11,815 | | |
| FYROM | 961 | 348 | 133 | 1 | 31 | 1,036 | 2,511 | | |
| Bosnia & Hercegowina | 934 | 17 | 35 | 275 | 128 | 0 | 1,389 | | |
| Croatia | 7,190 | 3,719 | 214 | 5,955 | 31 | 0 | 17,109 | | |
| Serbia and Montenegro | 1,386 | 690 | 566 | 974 | 465 | 0 | 4,082 | | |
| Moldavia | 250 | 52 | 37 | 77 | 492 | 501 | 1,409 | | |
| Turkey | 9,142 | 859 | 0 | 33,915 | 212 | 0 | 44,128 | | |
| Rest Europe | 1,644 | 97 | 3 | 536 | 29 | 0 | 2,308 | | |
| Morocco | 919 | 36 | 183 | 12,076 | 275 | 0 | 13,488 | | |
| Algeria | 1,144 | 18 | 47 | 54,171 | 12,511 | 0 | 67,892 | | |
| Tunisia | 380 | 9 | 5 | 5,229 | 206 | 0 | 5,829 | | |
| Libia | 1,763 | 8 | 28 | 53,780 | 9,641 | 0 | 65,220 | | |
| Egypt | 167 | 113 | 12 | 11,954 | 316 | 0 | 12,562 | | |
| Syria | 67 | 5 | 19 | 10,714 | 7,349 | 1 | 18,155 | | |
| Lebanon | 37 | 3 | 0 | 1,338 | 12 | 0 | 1,391 | | |
| Israel | 576 | 76 | 108 | 13,558 | 320 | 0 | 14,638 | | |
| Georgia | 31 | 8 | 0 | 870 | 6 | 0 | 915 | | |
| Armenia | 6 | 0 | 1 | 50 | 0 | 0 | 58 | | |
| Azerbajan | 27 | 3 | 1 | 3,177 | 1,150 | 0 | 4,357 | | |
| ALL EUN countries | 110,092 | 334,635 | 51,825 | 225,441 | 181,274 | 2,163 | 905,430 | | |

The results of trade forecasts for both imports and exports, are illustrated also in the figures hereunder.



Figure 4.1 Trade flows EU29 in relation with EU neighbouring countries, all transport modes, all goods, Reference scenario 2020

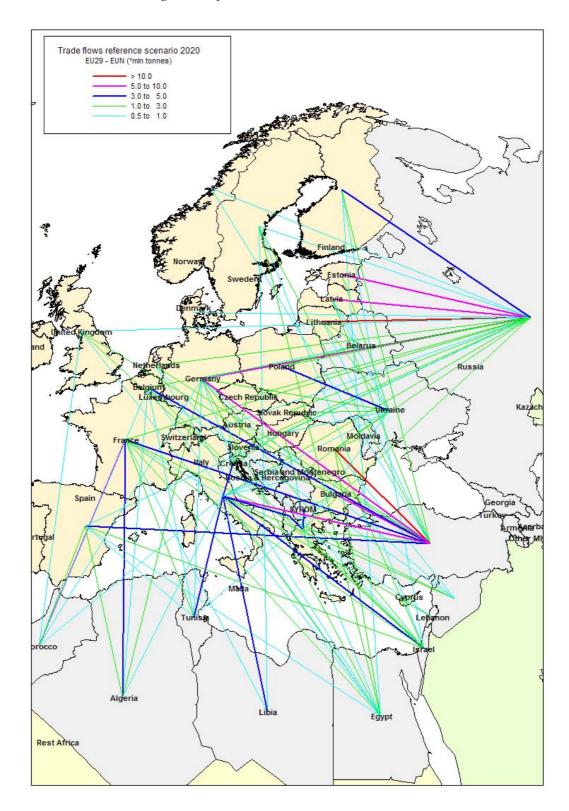
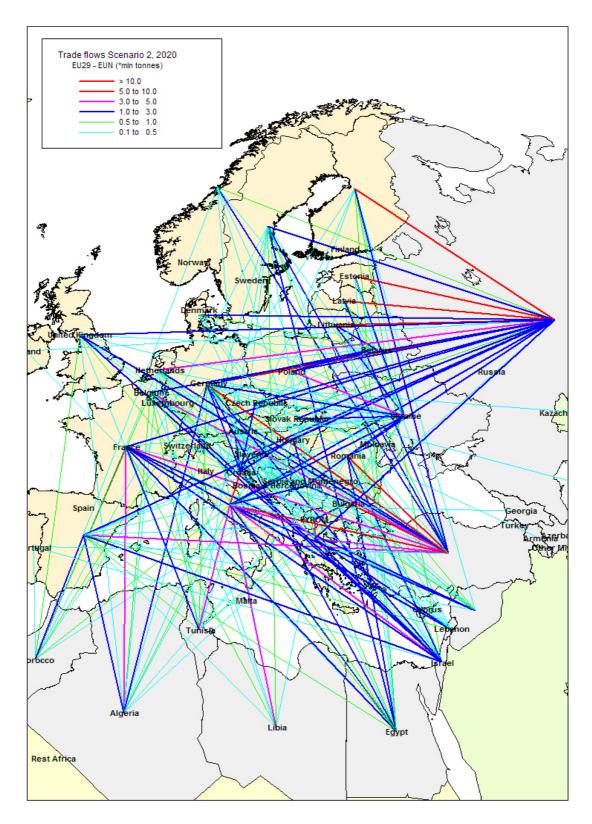




Figure 4.2 Trade flows EU29 in relation with EU neighbouring countries, all transport modes, all goods, Scenario 2, 2020

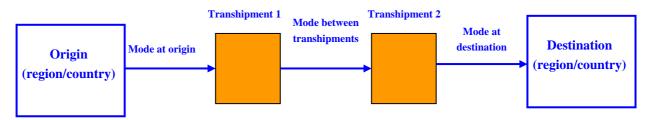




4.2 Transport and traffic flows forecasts 2020

Transport forecasts for year 2020, both scenarios, are derived from the trade forecasts, considering the transport chain for each OD relation, described by the NEAC 2020 forecasts, as follows:

Figure 4.3 Overview transport chain in the EUN-STAT database



where each leg of the transport chain is translated in an apart OD relation for estimating the transport demand by mode.

Traffic flows forecasts for both scenarios are shown in the figures hereunder.

Figure 4.4 International Rail freight flows between EU29 and EUN, 2020 reference scenario

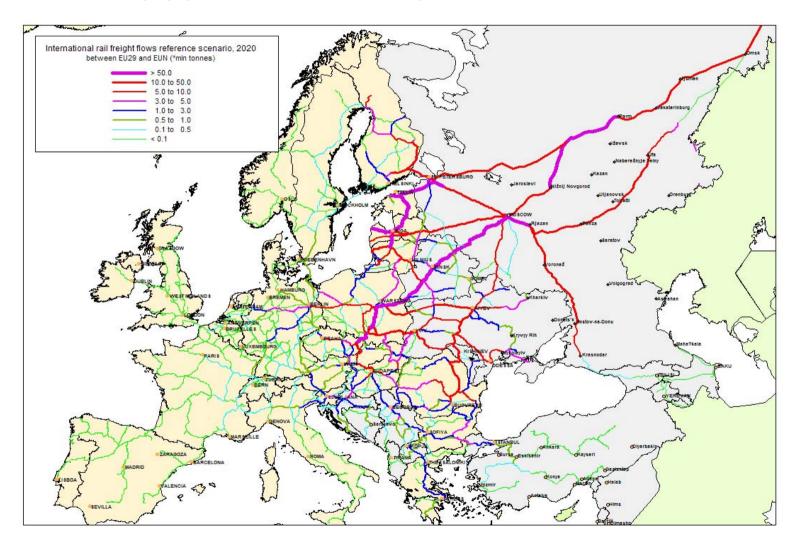


Figure 4.5 International Rail freight flows between EU29 and EUN, 2020 scenario 2

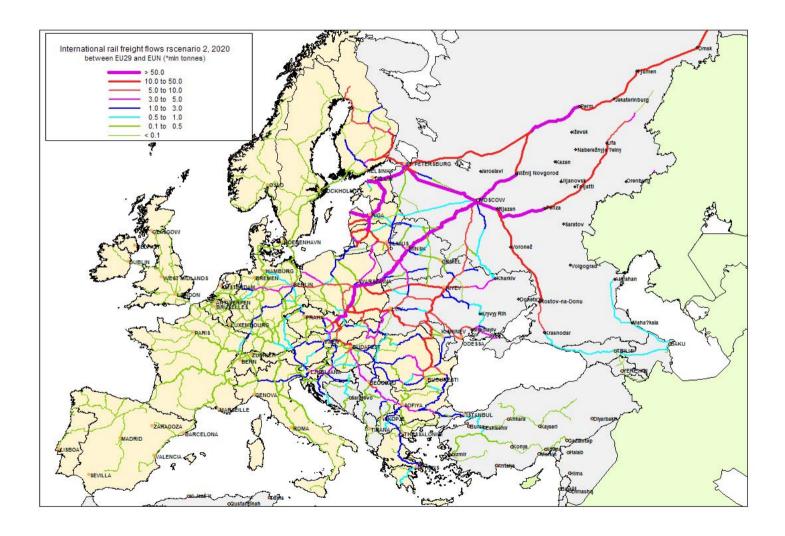


Figure 4.6 International Road freight flows in 2020 reference scenario between EU29 and EUN

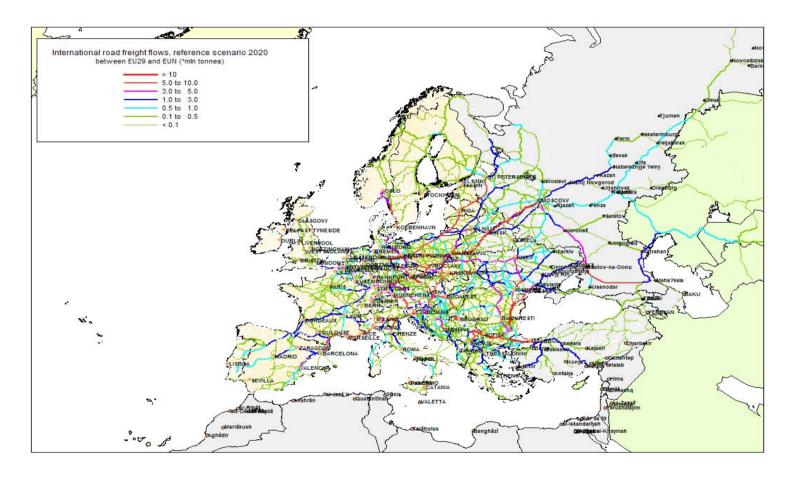
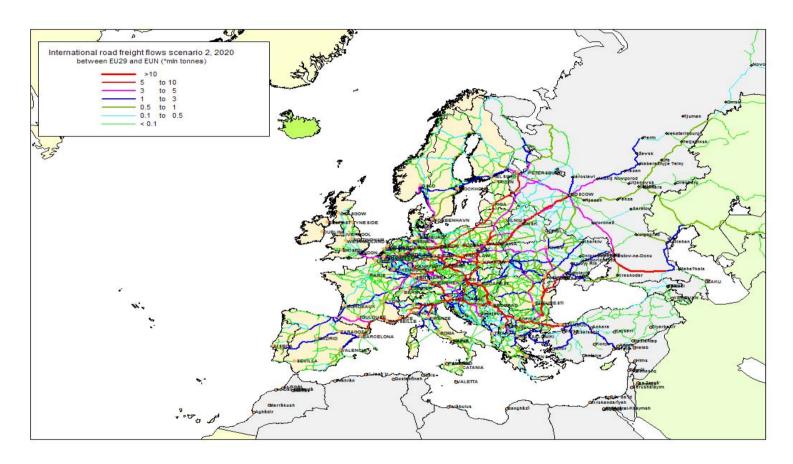


Figure 4.7 International Road freight flows in 2020 scenario 2 between EU29 and EUN





5 CONCLUSIONS AND RECOMMENDATIONS

Main conclusion on the trade flows are as follows:

- Exports and imports of EUN in relation with EU29 are unbalanced, with 116 million tones imported goods and 464 million tones exported ones. This tendency will be the same in the coming years. In year 2020, the total volume of imported good of EUN from EU29 is estimated to 254 million tones (Reference scenario) considering the basic economic growth of EUN countries, and 285 million tones (Scenario 2) considering a supplementary economic growth of EUN countries. The total volume of goods exported by EUN countries to EU29 in year 2020 is estimated to 859 million tones (Reference scenario) and to 905 million tones (Scenario 2).
- There are two main EUN "poles" of trade flows in relation with EU29: Russia and Turkey, as it is illustrated by Figures 2.3, 4.1 and 4.2.
- Trade flows are concentrated on the Eastern border of EU29, where the volumes of goods are higher than at the South border (MEDA countries).

Main conclusion on the traffic flows are as follows:

- There are higher volumes on the rail network compared to road ones, as illustrated by the traffic assignment maps presented in the report.
- Highest rail traffic flows are observed in relation to/from Russia on the following main axes:
 - o Hungary Czech Republic Poland Belarus Russia (Moscow)
 - o Baltic countries Russia (St. Petersburg)
 - o Bulgaria Romania Ukraine Russia
- Highest road traffic flows are observed in relation to/from Russia and Turkey on the following main axes:
 - o Germany Poland Belarus Russia (Moscow)
 - o Germany Poland Baltic countries Russia (St. Petersburg)
 - o Turkey Bulgaria Balkan Countries Germany (North-West & South West)
 - Turkey Bulgaria Balkan Countries North Italy South of France East of Spain
 - o Bulgaria Romania Ukraine