

Good Practice N° 08

Intermodal transport of marble from Bulgaria to Italy

Ecologistics Ltd., 04/2013

Contents

- Good practice form
- Introduction (summary)
- Starting position (gaps and challenges)
- Concept and components
- Application case
- Conclusions and benefits
- Further exploitation
- Contact
- Disclaimer

Good Practice N°08: Intermodal transport of marble from Bulgaria to Italy

Good practice form

Good practice name	Intermodal transport of marble from Bulgaria to Italy
Type	(1) Market requirements, (4) Rail production
Involved actors	(2) Railway operator (4) Terminal operator
Commercial / Functional application area	Setting up a rail freight service for the transport of marble between Bulgaria (Vratsa) and Italy (Verona) and transforming production technology to intermodal.
Geographical application area	Bulgaria – Serbia – Slovenia - Italy
Status / Time period	Rail service in operation (since 9/2012); planning phase (intermodal solution)
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Introduction (summary)

Ecologistics is the terminal operator of the private **intermodal transshipment terminal Sofia-Yana**. The terminal provides high quality container/rail loading and unloading services to shipping lines, intermodal operators, railway undertakers and forwarders from Bulgaria and abroad.

With 60,000 sqm, Sofia-Yana Terminal is the most developed location in Bulgaria for intermodal trains, operated on the routes between Eastern and Western Europe. The terminal is in the cross point of three pan-European transport corridors:

- **Corridor N°4:** Dresden/Nuremberg – Prague – Vienna – Bratislava – Budapest – Arad – Vidin – Sofia – Thessaloniki – Istanbul
- **Corridor N°8:** Durrës – Tirana – Skopje – Sofia – Burgas – Varna
- **Corridor N°10:** Salzburg – Ljubljana –

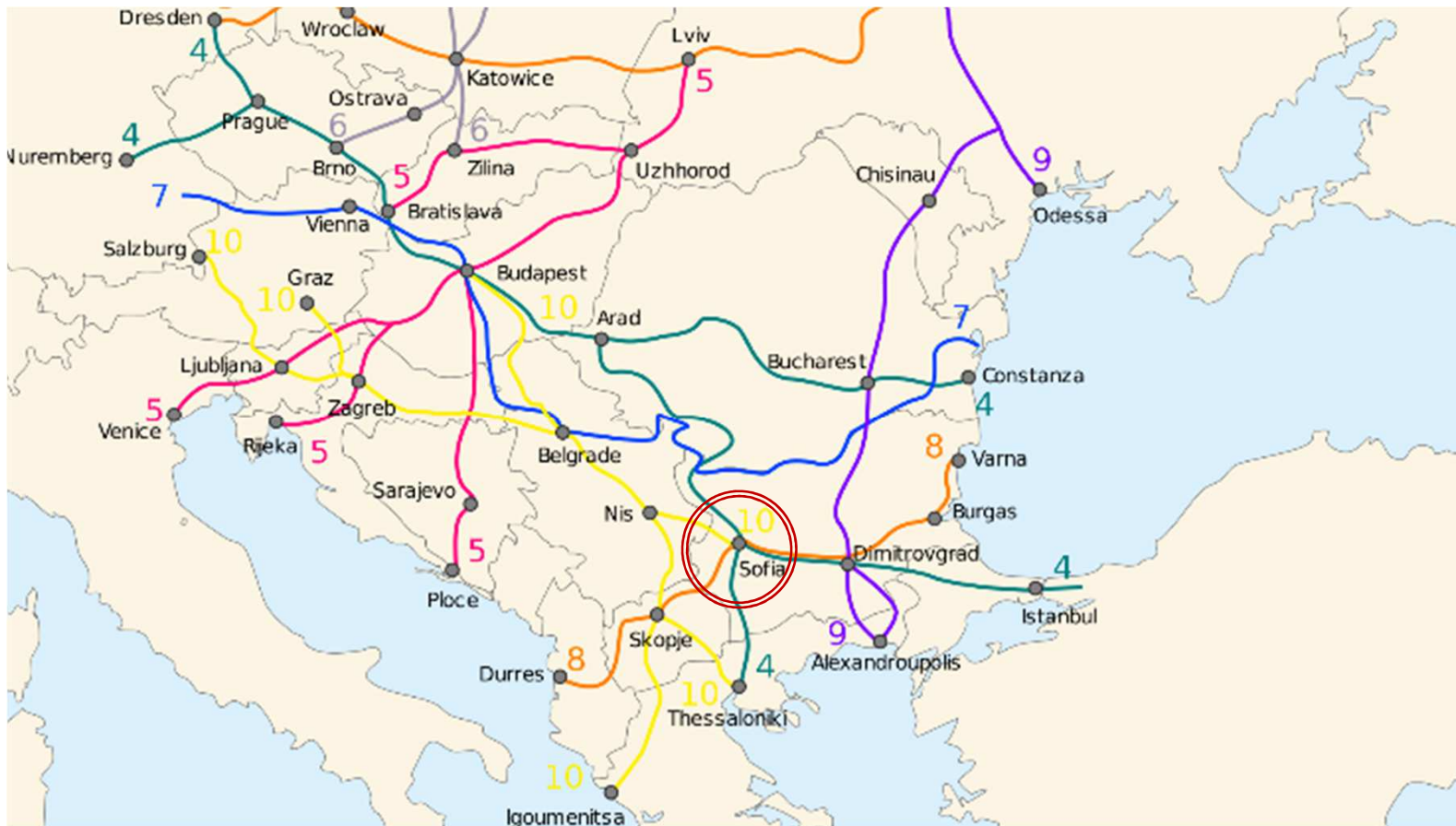
Zagreb – Belgrade – Sofia – (Plovdiv – Istanbul)

Recently Ecologistics started to act as an operator for railway freight of marble from the small mountain city Vratza in Bulgaria to Verona in Italy. It is intended to develop an intermodal solution for this transport.

Good Practice N°08: Intermodal transport of marble from Bulgaria to Italy

Starting position – Sofia location

Sofia connection to pan-European transport corridors

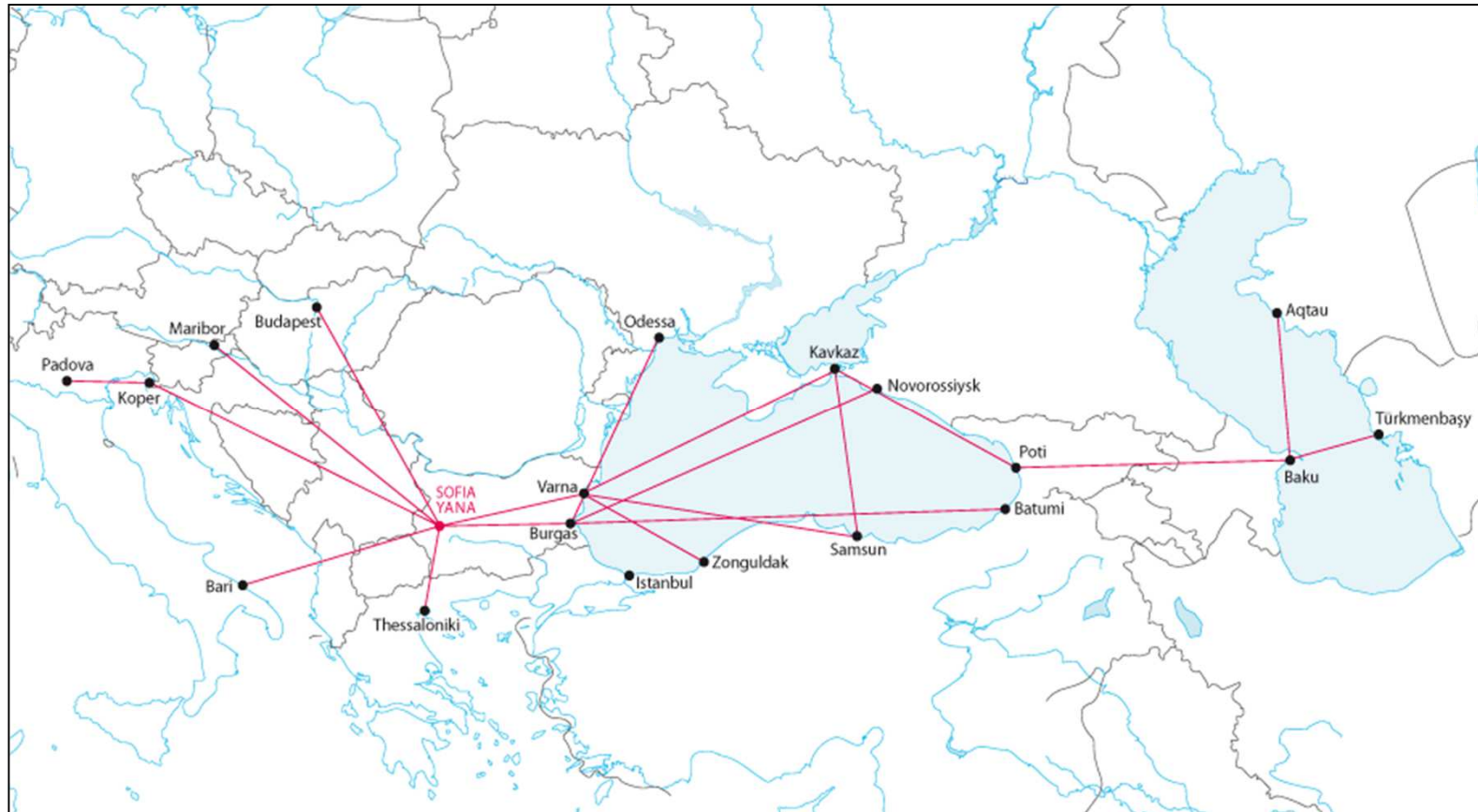


Source: Wikipedia

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Starting position – Sofia-Yana intermodal terminal

General location and potential destinations (map)



Source: Ecologistics

Starting position – Sofia-Yana intermodal terminal

Terminal location and facilities

- Located at Yana railway station
- Around Yana 35 km private tracks; 5 railway stations (incl. Yana)
- One Reach-stacker, 42 t.
- RTG with spreader on second phase after 2011
- 2 x warehouse fork-lifts & pickers
- 2 x (one rail and one truck) scales
- Portable car unloading ramp
- Metal products lifting equipment, 2 x heavy capacity fork-lifts
- 4 shunting locomotives
- Fuel tank
- Container washing equipment
- Technical workshop

Starting position – challenges

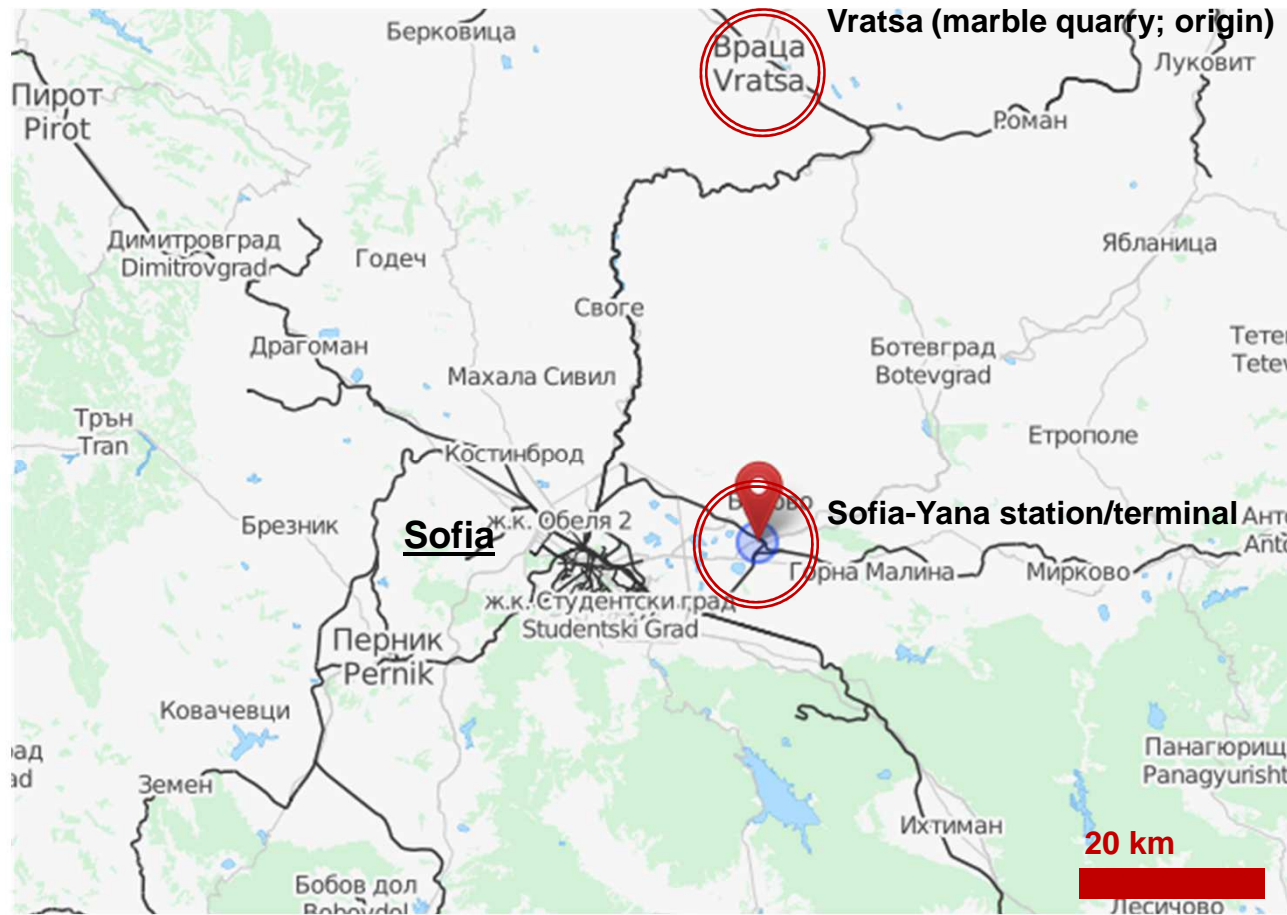
Specific key data for marble transports Vratsa-Verona

- Imbalanced transport flows from/to Bulgaria (import flows are dominant)
- Low freight rate for export traffic from Bulgaria to Italy
- Marble transports Vratsa-Verona were operated with trucks
→ rail transport had to deliver a better solution
- Rail transport service had to be designed with the involvement of numerous partners
- Rail route via Serbia (non-EU country) requires complex customs procedures (preparation of numerous customs documents)
- Weight of marble blocks: up to 25 tonnes
- For loading/unloading of marble no special loader is available
→ technical solution based on reach stacker + ropes/belts

Good Practice N°08: Intermodal transport of marble from Bulgaria to Italy

Starting position – Vratsa location

Vratsa / City of Sofia / Sofia-Yana site



Base map:
Openstreetmap

Starting position – challenges

Aspects to be considered for setting up a new service

- **Rail production including train path scheduling**
time-table / frequency; train parameters (weight, length, max. speed); production system considering expected volumes; rail traction; back-up / emergency concepts
- **CT wagons**
choice of wagons (standard wagon vs. specialised wagon) considering mix of loading units; round trip scheduling; number of wagon sets and reserve capacities
- **CT terminals**
Requirements for rail access / last-mile logistics, terminal time-slot(s), Management handling + truck delivery / pick-up, intermediate storage of intermodal loading units considering type of equipment (stackable, non-stackable, semi-trailers)
- **Information and communication**
exchange of operational data and communication along the entire transport chain; tracking and tracing; suitable IT tools
- **Commercial conditions**
door-to-door vs. terminal-to-terminal service; pricing model

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Concept and components – implementation approach

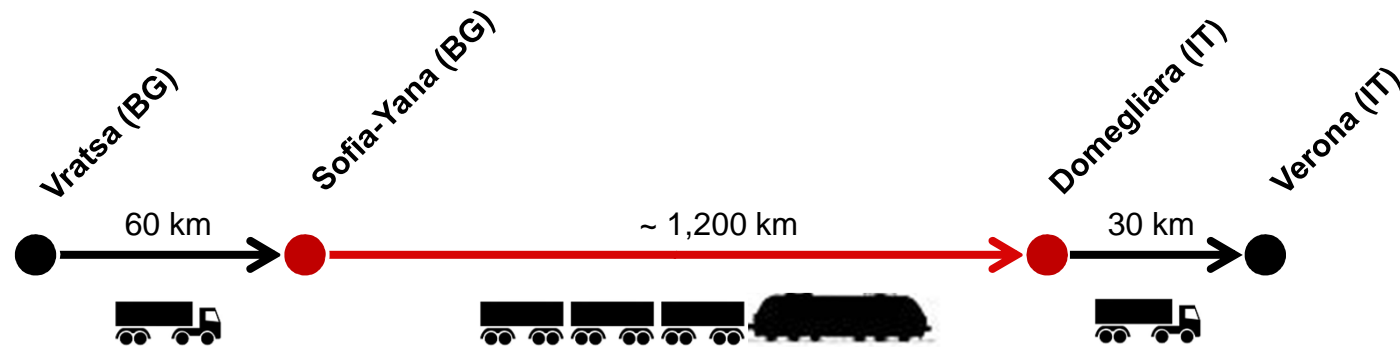
Implementation of intermodal solution in two steps

- **Step 1: Switch from road to rail**
Set up a freight train service from Vratsa (BG) to Verona (IT)
(implemented: September 2012)
- **Step 2: Switch from conventional rail freight to intermodal**
Set up an intermodal rail service between Sofia-Yana and Verona
(planning phase)

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Concept and components – transport chain

Conventional rail freight service (step 1; realised)



- Sections Vratsa-Yana and Domegliara-Verona by truck
- Transshipment of marble blocks between truck and conventional rail flat wagon in Yana and Domegliara rail stations
- Long distance rail section ~ 1,200 km; passing 4 borders

Concept and components – technical details

Conventional rail freight service (step 1; realised)

- Manoeuvres in Yana station/terminal with own shunting locomotives:
Two diesel-hydraulic locomotives existing (52/55 series)
- Selected railway route (via pan European corridors 10 + 5):
Bulgaria – Serbia – Croatia – Slovenia – Italy
- Railway operators: BDZ Cargo, ZS, HZ, SZ (lead), Trenitalia
- Frequency: 1 block train per month
- Operated with temporary international train paths / timetables
- Transport time: Up to 6 days
4 days more than a truck; not crucial as transport is not time sensitive
- Train parameters:
 - Wagon type(s): flat wagons; Res/Rgs; owned by BDZ
 - N°. of wagons: ~19-20
 - Net train weight: ~880 tonnes
 - Gross train weight: ~1,300 tonnes

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Concept and components – technical details

Intermodal freight service (step 2; planned)

- Intermodal equipment: swap bodies
- Transshipment of swap bodies in Sofia-Yana intermodal terminal
- Regular train paths Bulgaria – Italy vv
- Service open to any customer; potentially
 - additional cargo from Bulgaria
 - reload from Italy

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Application case – test train Yana - Domegliara

Operated on 14-17/9/2012, data before start of train run:

State and station of departure: **Bugarska, Yana (52 32007)**

State and station of arrival: **Italia, Domegliara (83 02055-2)**

Scheduled date of departure/hour of departure: **14.09.2012 at 13.32 pm**

Scheduled date of arrival/hour of arr. in Villa Opicina: **17.09.2012 at 19.00 pm**

Transport route: **Dragoman-Šid-Dobova-Villa Opicina**

Further carriers: **BDŽ Cargo, ŽS, HŽ Cargo, SŽ-TP, TI Cargo**

Customs station (TL 2): **Dragoman, Dobova**

Length of the train: **500m**

Number and type of wagon: **18-20 Res, Rgs**

Type of goods (NHM): **Marble, NHM 2515/2516**

Predicted gross weight of goods: **Maximum 1300t**

Consignee: **Terminal Ferroviario Valpolicella**

One consignment note for the whole train.

Conclusions and benefits

- Ecologistics supports one of the biggest producers of marble in Bulgaria to implement rail based logistics concept
- Each train replaces 45 trucks on the route between Bulgaria and Italy
- Reduction of CO₂ emissions
- Reliable transport price for the customer
- The implemented solution is one of the first steps to connect Bulgaria into international intermodal transport networks

Further exploitation – goals/challenges

Develop Sofia-Yana location

- Attract cargo originating in Western and Central Europe
- Taking advantage of Bulgaria's unique geographic position
- Serve as a shipping gateway to the Caspian Sea

Switch marble transport to an intermodal solution

- Deploy intermodal equipment (swap bodies)
- Set-up unaccompanied intermodal transport service between Bulgaria (Sofia-Yana) and Italy (Verona), open to any customer
- Expected benefits compared to current rail freight service:
 - More efficient transshipment processes
 - No need for customers to book one complete block train
 - Higher train frequencies between Sofia and Verona
 - More volumes transported by rail → further reduction of CO₂ emissions

Good Practice N°08: Intermodal transport of marble from Bulgaria to Italy

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