EDA 2024

14. EUROPEAN SCIENTIFIC PRACTICAL CONFERENCE ON INNOVATON IN STRATEGICAL PLANNING, CIVIL ENGINEERING, ARCHITECTURE, INDUSTRIAL COOPERATION, INTELLIGENT EUROPEAN CITIES, EU FUNDS AND BUSSINES DEVELOPMENT EU 2030 - BEST KEYS FOR APLICATION

SEPTEMBER 17.-18, 2024
EMBASSY OF THE
SLOVAK REPUBLIC IN SOFIA

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40. EURÓPSKE FÓRUM VISEGRAD 4+
PROGRAM EDA PROJEKT EDA 2024
14. EURÓPSKA VEDECKO-PRAKTICKÁ KONFERENCIA
INOVATÍVNE STRATEGICKÉ PLÁNOVANIE, STAVEBNÉ INŽINIERSTVO, ARCHITEKTÚRA, INDUSTRIÁLNA KOOPERÁCIA,
INTELIGENTNÉ EURÓPSKE MESTÁ, FONDY EÚ A OBCHODNÝ ROZVOJ - EÚ 2030
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(BEST KEYS FOR APLICATION)
SEPTEMBER 17.-18, 2024 SOFIA BULGARIA

ФОРУМ ЕДА 2024
FORUM EDA 2024

ZÁŠTITA NAD KONFERENCIOU
POD PATRONATEM
POD ZÁŠTITOU
ПОД ПАТРОНАЖА НА
UNDER AUSPICES OF

Velvyslanectví České republiky v Sofii

J. E. Ing. Miroslav Toman
Mimořádný a zplnomocněný velvyslanec České republiky v Bulharské republice
H. E. Ing. Miroslav Toman
Ambassador of the Czech Republic to the Republic of Bulgaria

VEĽVYSLANECTVO
SLOVENSKEJ REPUBLIKY
V PRAHE

Ľuboš Moravčík
Slovak Chamber of Civil Engineers, Slovak Republic
Grzegorz Sierpiński
Silesian University of Technology,Poland
Aleksander Sładkowski
Silesian University of Technology, Poland
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Małgorzata Urbańska-Turecek
Ministerstwo Inwestycji i Rozwoju, Poland

(в азбучен ред, без титли и звания/in alphabetical order without title)

ISBN: 978-80-87159-60-6

PROGRAM

I.

ОТКРИВАНЕ НА КОНФЕРЕНЦИЯТА
ZAHÁJENIE KONFERENCIE
ZAHÁJENÍ KONFERENCE
OPENING OF THE CONFERENCE
17.09.2024
Embassy of the Slovak Republic to the Republic of Bulgaria

Daniel Orszag
Welcome from the name of Embassy of the Slovak Republic in Sofia

OPENING OF THE CONFERENCE

Anna Janiszewska-Frączeк,
Embassy of the Republic of Poland in Sofia

(Conference proceedings)
Ministry of Construction and Transport
Hungary

(без титли и звания/without title)

IV. KEY V4 UNIVERSITIES

Rozwój infrastruktury na globalnych korytarzach transportowych Wschód - Zachód
Development of infrastructure on global transport corridors East - West
Aleksander Sładkowski
Silesian University of Technology
Poland

Development of the Trans-European transport network on the Balkans
Развитие на трансевропейската транспортна мрежа на Балканския полуостров
Stoyo Todorov
University of Archtecture Civil Engineering and geodesy
Bulgaria

(без титли и звания/without title)

V.
ОТКРИВАНЕ НА КОНФЕРЕНЦИЯТА
ZAHÁJENIE KONFERENCIE
ZAHÁJENÍ KONFERENCE
OPENING OF THE SECOND DAY OF THE CONFERENCE
18.09.2024
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Zsolt Lukáč
Slovenská komora stavebných inžinierov

VEĽVYSLANECTVO
SLOVENSKEJ REPUBLIKY
V SOFII

Velvyslanectví České republiky v Sofii

Ambasada
Rzeczypospolitej Polskiej
w Sofii

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SEPTEMBER 17-18, 2024 - SOFIA, BULGARIA

MINISTRY OF INDUSTRY AND TRADE
OF THE CZECH REPUBLIC

УНИВЕРСИТЕТ
ПО АРХИТЕКТУРА
СТРОИТЕЛСТВО
И ГЕОДЕЗИЯ

SKSI
SLOVENSKÁ KOMORA STAVEBNÝCH INŽINIEROV

STRUCTURAL ENGINEERING & ARCHITECTURE

Silesian University
of Technology

TAROSI
construction & consulting company

Development of infrastructure on global transport corridors East - West

Aleksander Sładkowski

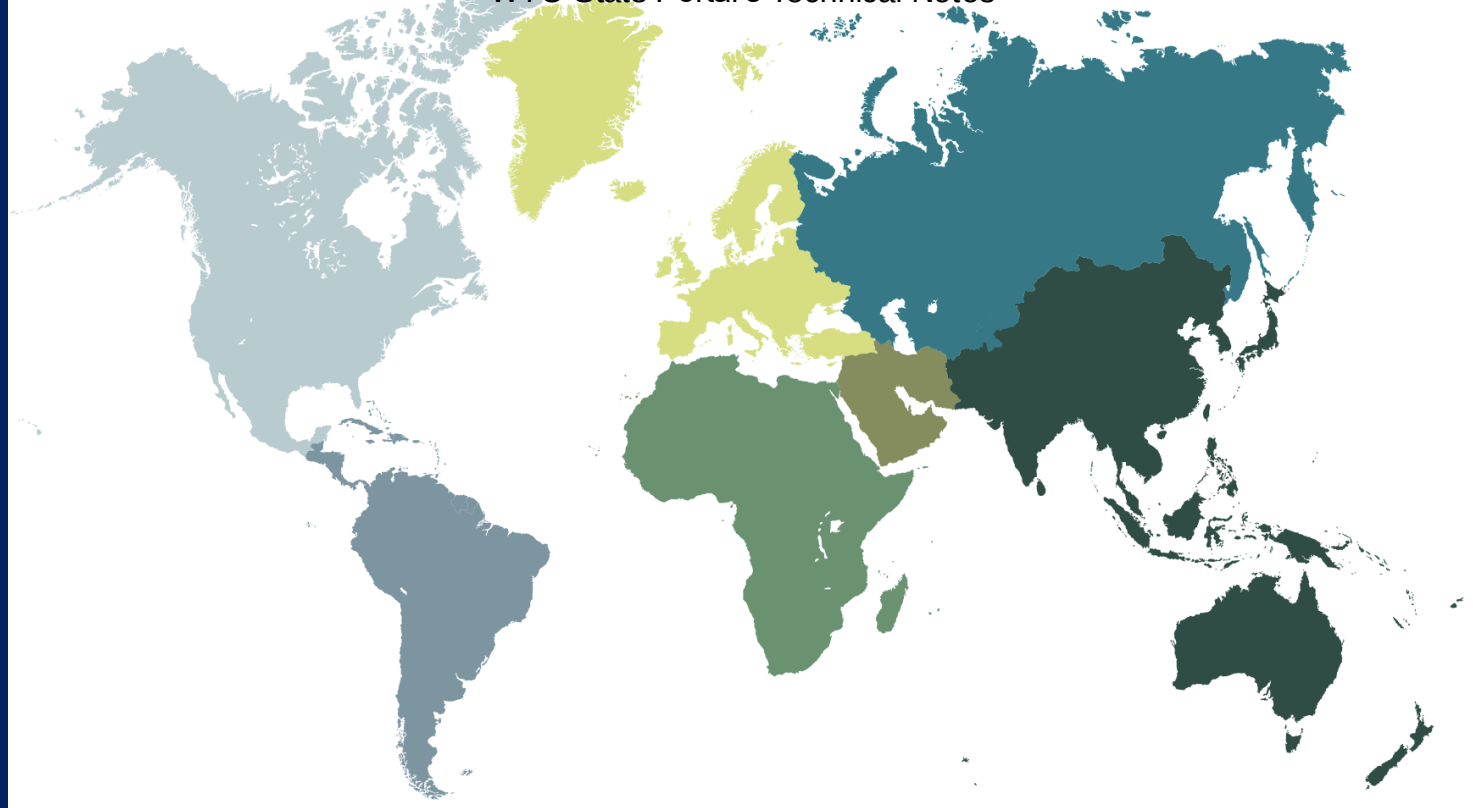
Silesian
University
of Technology

Development of infrastructure on global transport corridors East - West

Aleksander Sładkowski

Composition of geographical and economic groupings

WTO Stats Portal's Technical Notes



World merchandise exports by global regions, 2012-2022
(Million dollars)

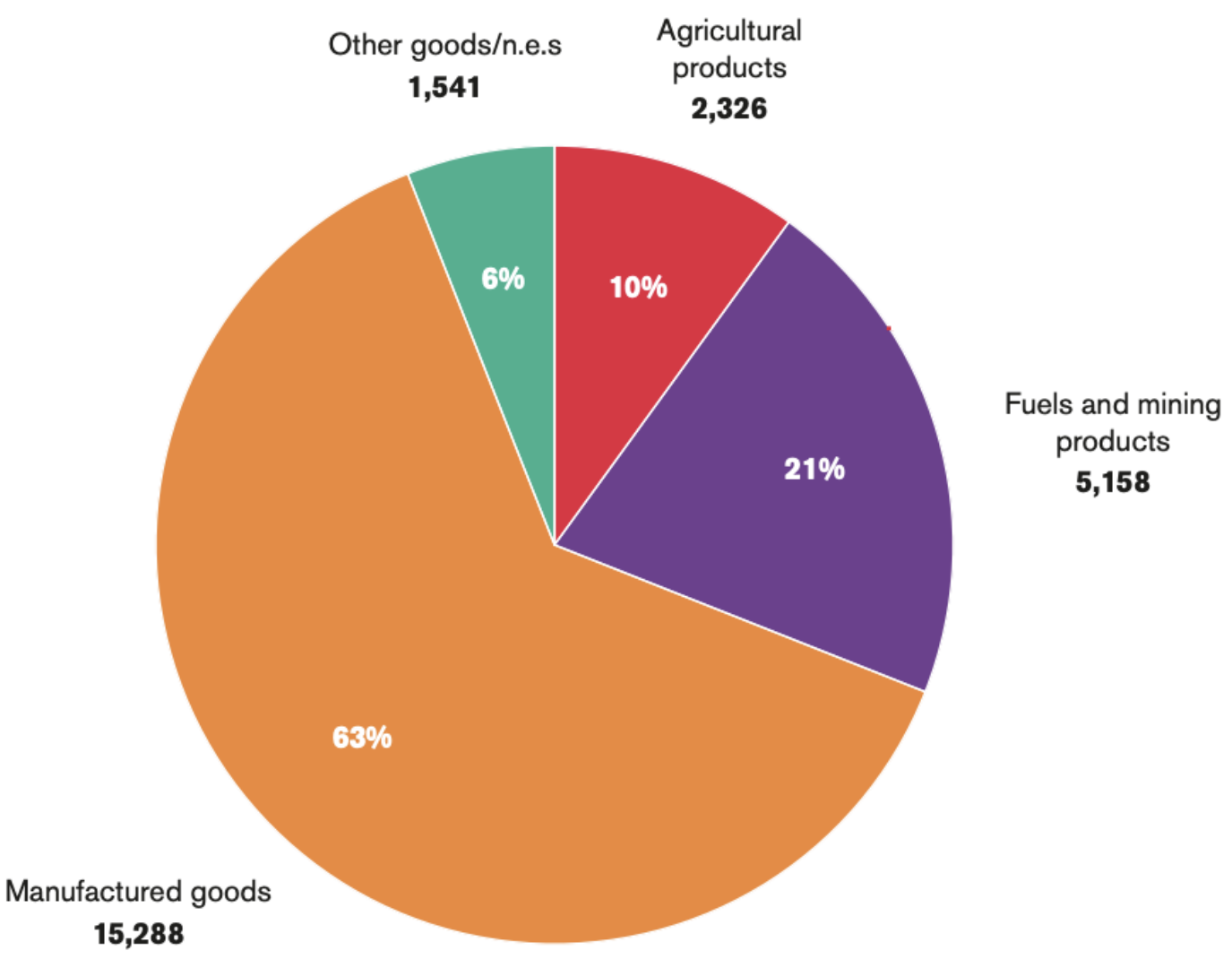
	2012	%	2022	%
World	18508178	100,00	24904489	100,00
Europe	6540713	35,34	8696126	34,93
North America	2372077	12,82	3240479	13,01
South and Central America and the Caribbean	747752	4,04	831783	3,34
Commonwealth of Independent States (CIS)	729119	3,94	724002	2,91
Africa	637066	3,44	655239	2,63
Middle East	1361455	7,36	1635577	6,57
Asia	6119996	33,07	9121284	36,63

World merchandise exports by European regions, 2012-2022
(Million dollars)

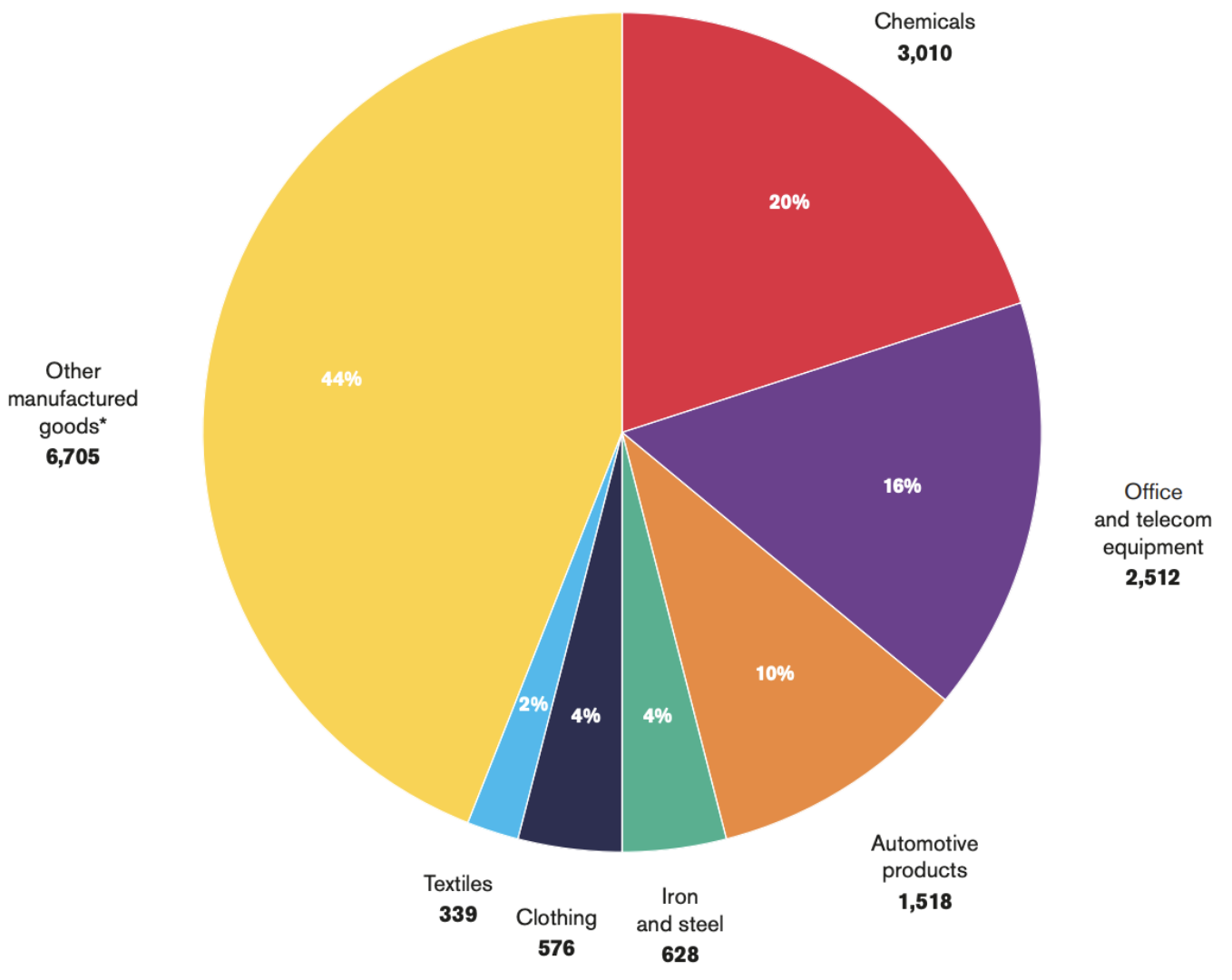
	2012	%	2022	%
Europe	6540713	100,00	8696126	100,00
Germany	1401113	21,42	1655480	19,04
Netherlands	655374	10,02	965518	11,10
Italy	501306	7,66	656925	7,55
Belgium	445939	6,81	632852	7,28
France	568708	8,69	617817	7,10
United Kingdom	478780	7,32	529435	6,09
Switzerland	312464	4,78	401731	4,62
Spain	295250	4,51	418364	4,81
Poland	185374	2,83	360542	4,15
Türkiye	152462	2,33	254172	2,92
…				
Ukraine	68530	1,05	45830	0,53

World trade in goods and commercial services

Merchandise exports by major product group, 2022



World exports of manufactured goods, 2022

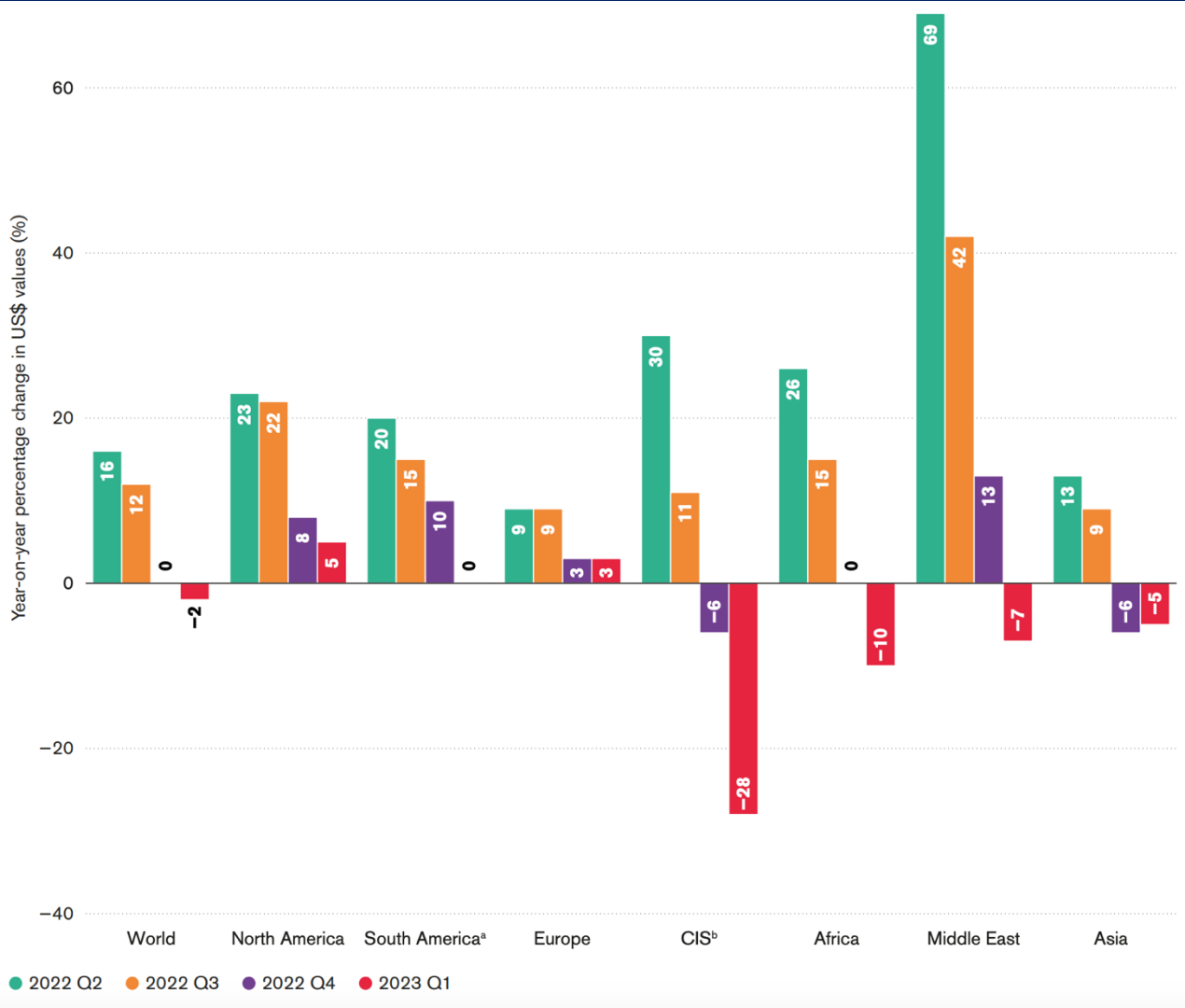


Regional exports of delivered services by destination, 2019-21

	Destination													
	Europe		Asia		North America		CIS*		Middle East		South & Central America**		Africa	
Exporter	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021	2019	2021
Europe	63.5%	62.3%	13.1%	13.8%	14.3%	15.4%	1.9%	1.8%	3.1%	3.2%	2.3%	1.8%	1.9%	1.7%
Asia	30.8%	29.0%	39.2%	43.2%	19.7%	18.4%	1.1%	1.0%	4.3%	4.1%	2.6%	2.2%	2.4%	2.1%
North America	54.3%	50.0%	20.1%	22.4%	15.8%	18.2%	0.9%	0.8%	2.0%	2.1%	5.4%	5.1%	1.5%	1.4%
CIS*	56.8%	55.0%	15.2%	15.4%	11.5%	13.0%	8.4%	8.8%	4.0%	4.3%	2.5%	2.0%	1.5%	1.4%
Middle East	43.3%	42.9%	22.0%	22.8%	18.8%	18.7%	1.7%	1.7%	9.2%	9.6%	2.4%	2.1%	2.6%	2.3%
South & Central America**	35.5%	31.0%	15.0%	17.4%	34.5%	37.5%	1.7%	1.3%	3.2%	3.2%	8.2%	8.0%	1.9%	1.5%
Africa	52.4%	52.4%	20.3%	22.0%	14.8%	14.0%	1.0%	0.9%	5.2%	5.3%	2.4%	2.1%	3.9%	3.3%

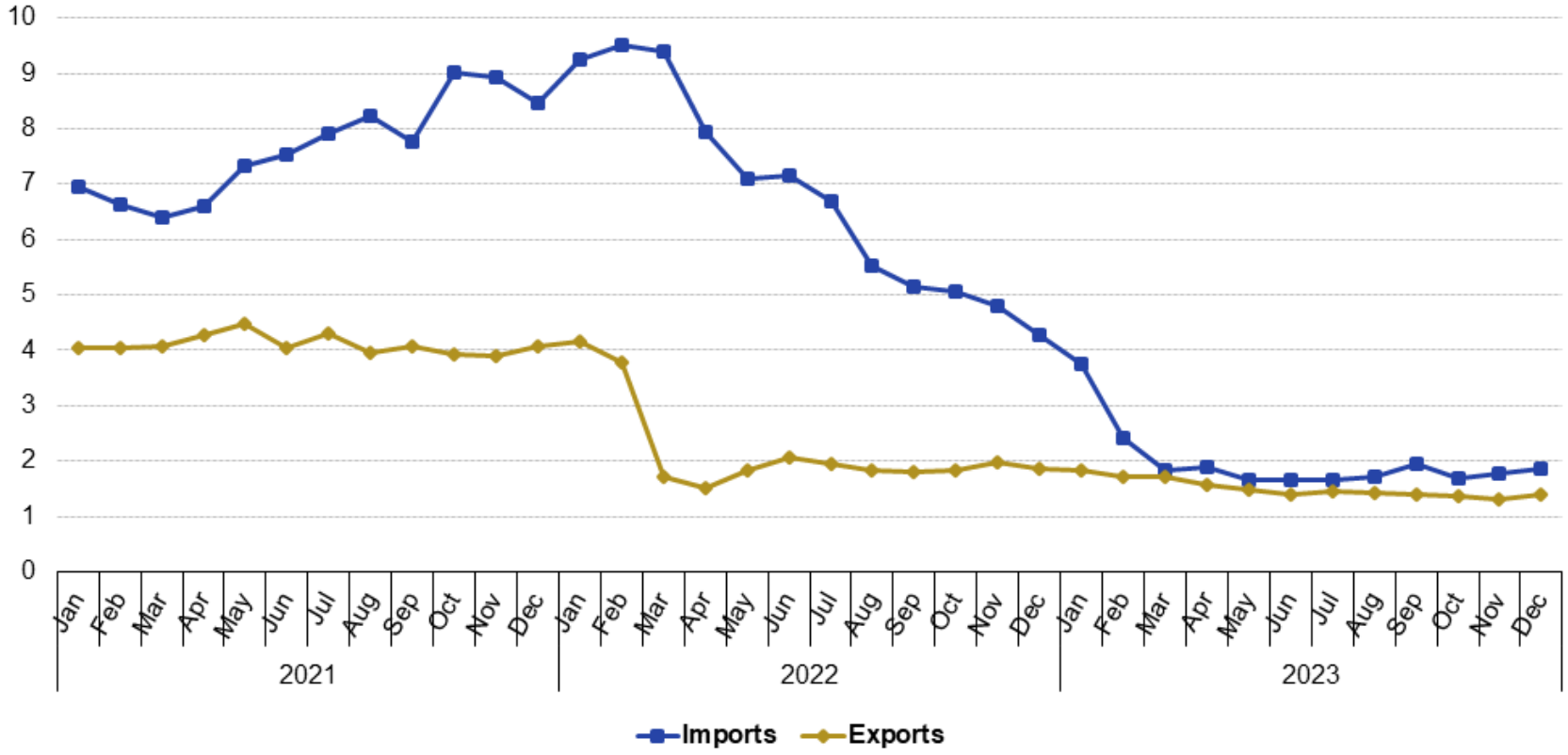
Growth in merchandise exports by region

(Year-on-year percentage change in US$ values)



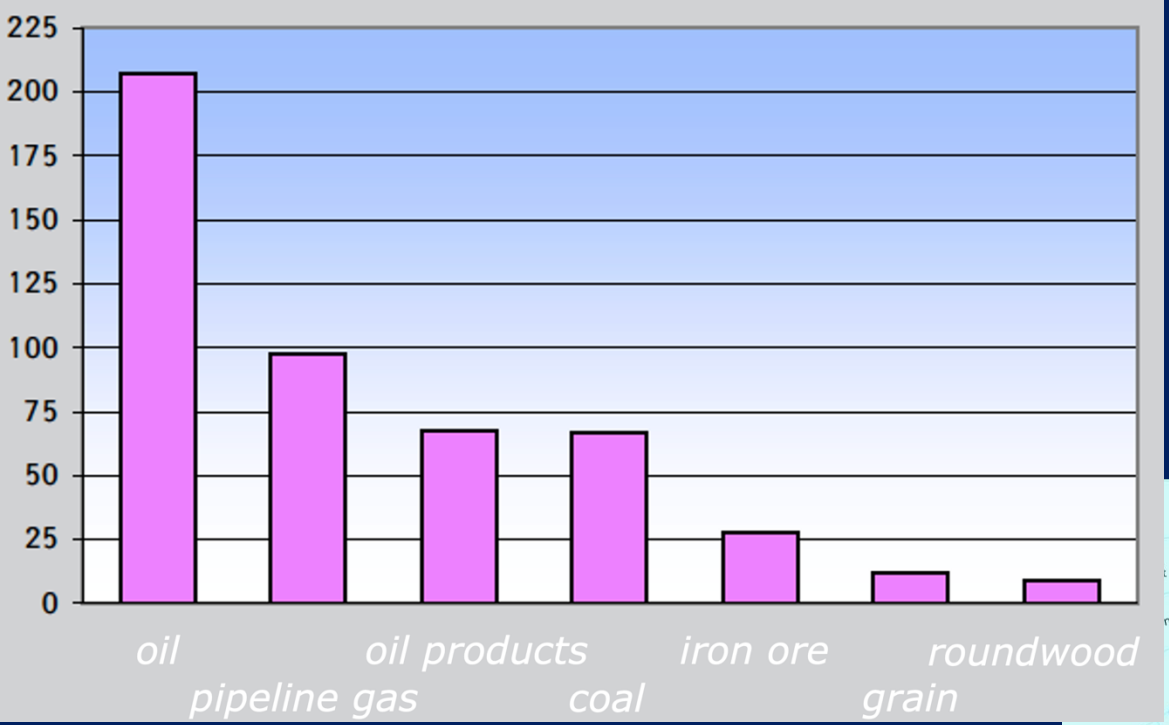
EU trade in goods with Russia, January 2021 to December 2023

(% share in extra-EU trade, seasonally adjusted)



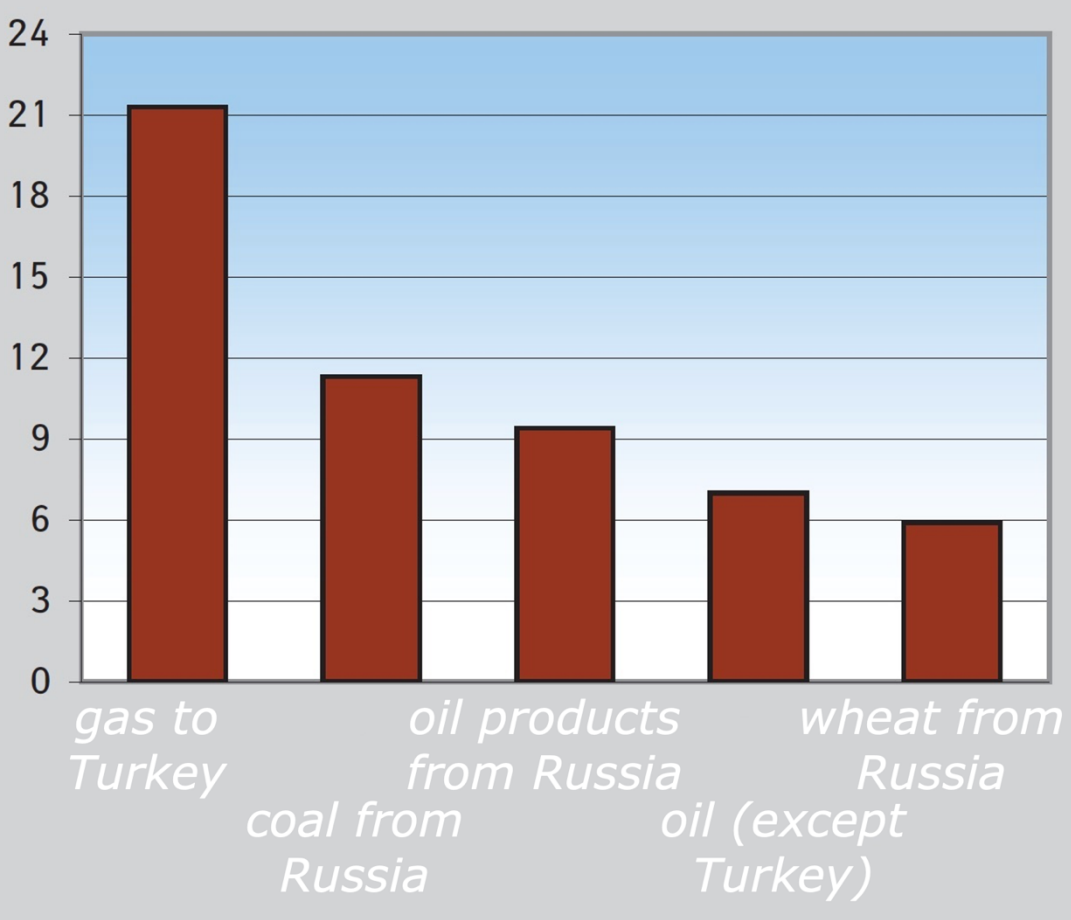
Source: Eurostat (online data code: ext_st_eu27_2020sitc)

The main components of cargo traffic CIS – EU in 2014 (mln t)

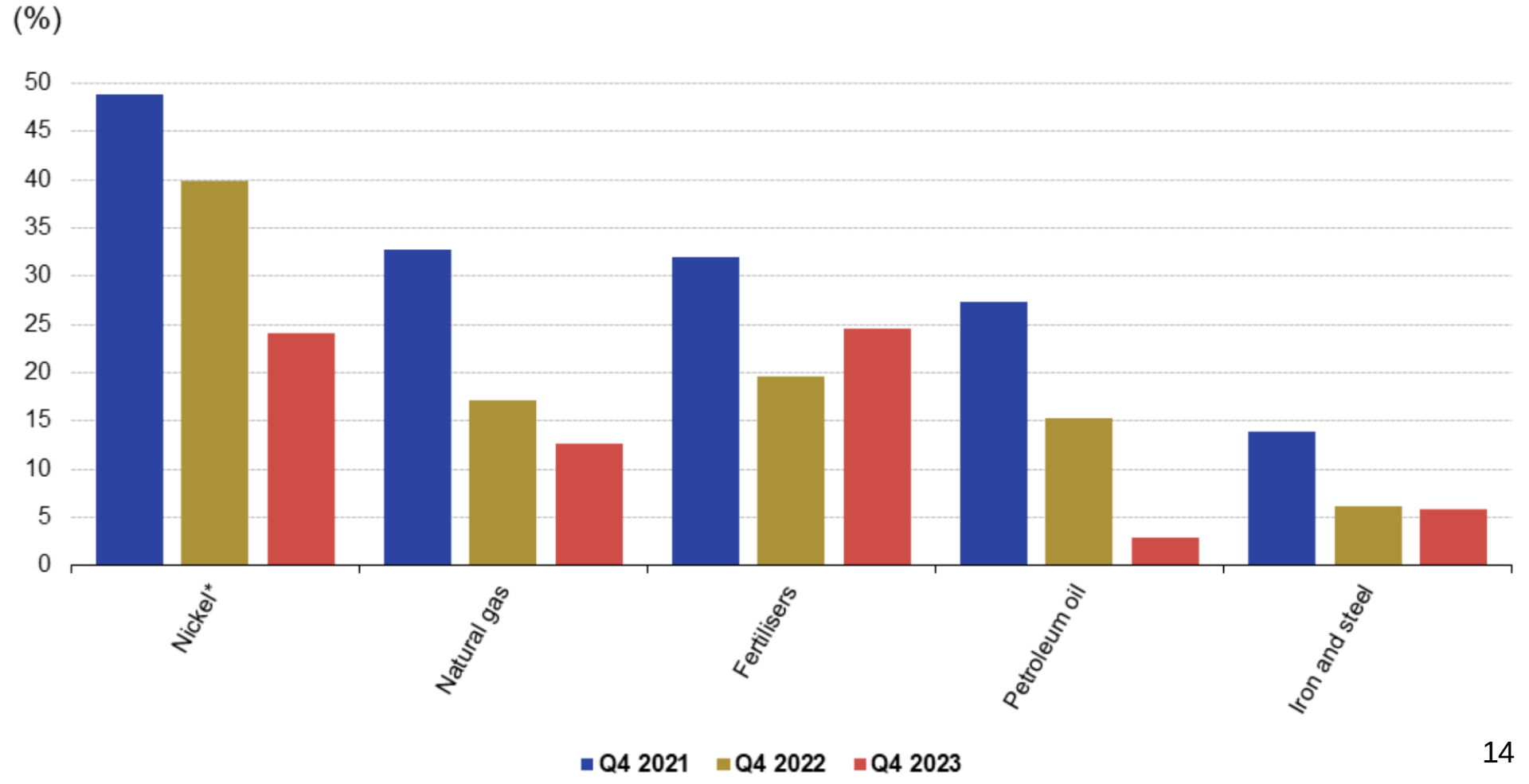


The main components of cargo traffic

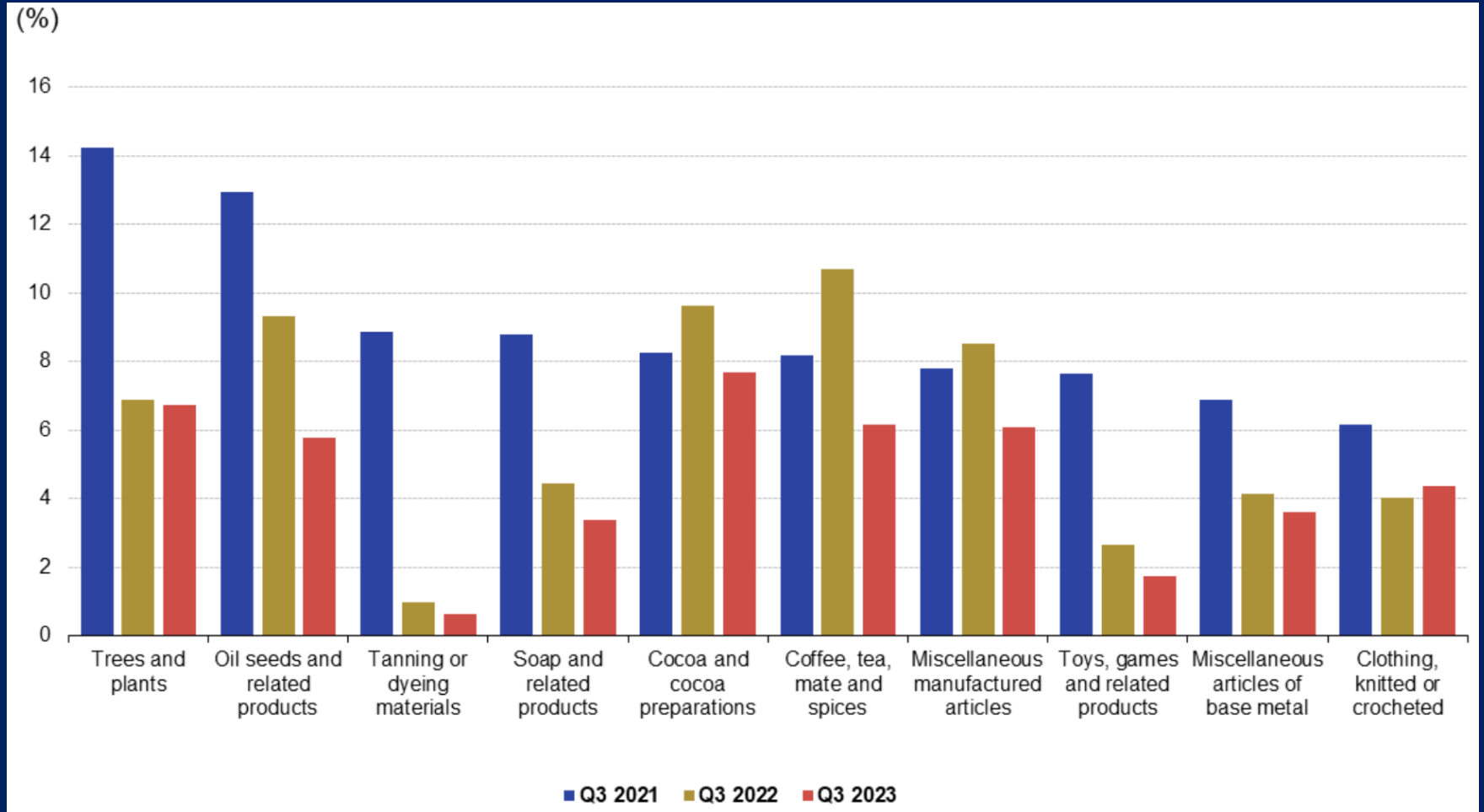
CIS – Mediterranean in 2013 (mln t)



Key product groups imported by the EU from Russia

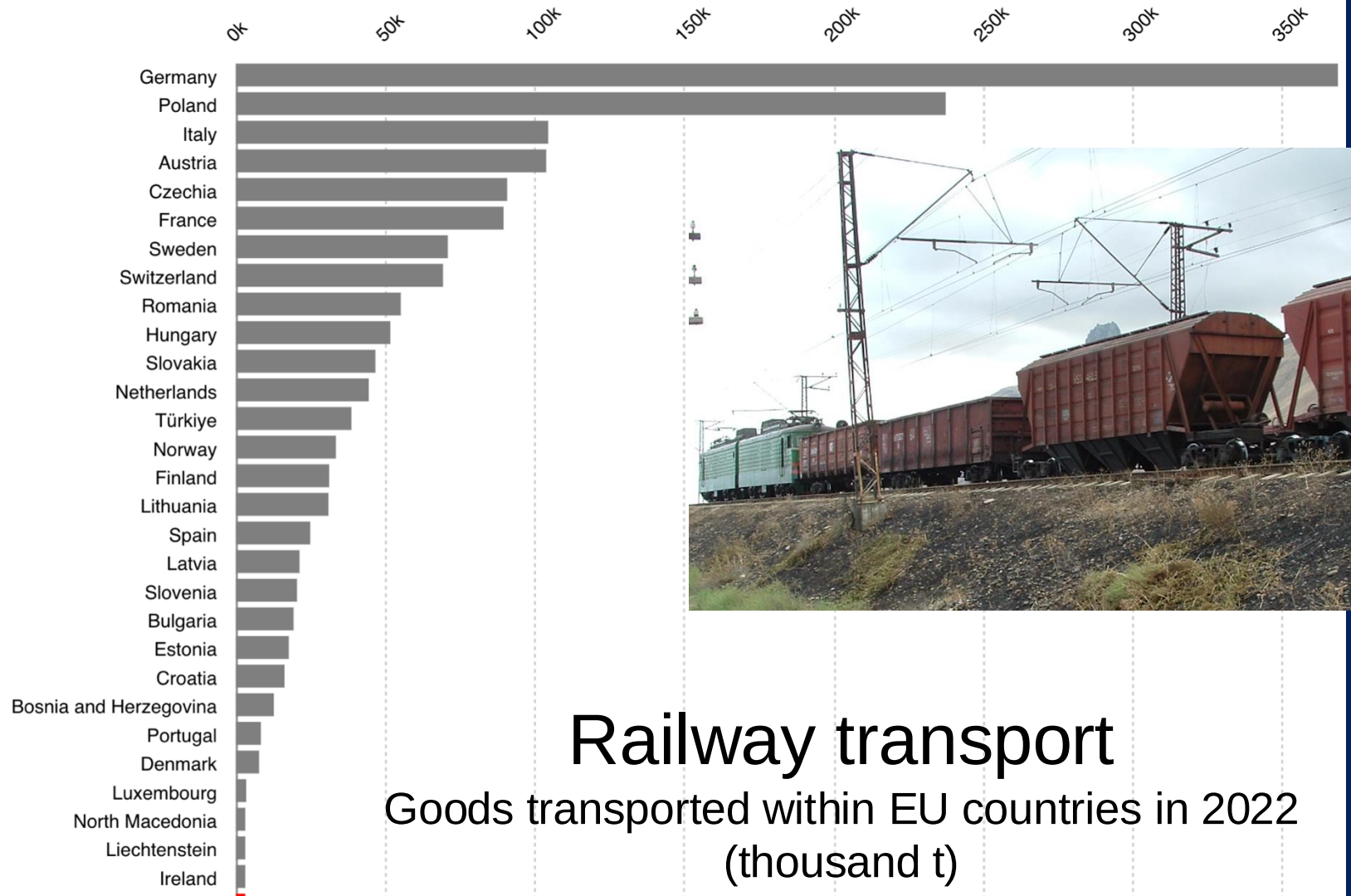


Main product groups in EU exports to Russia



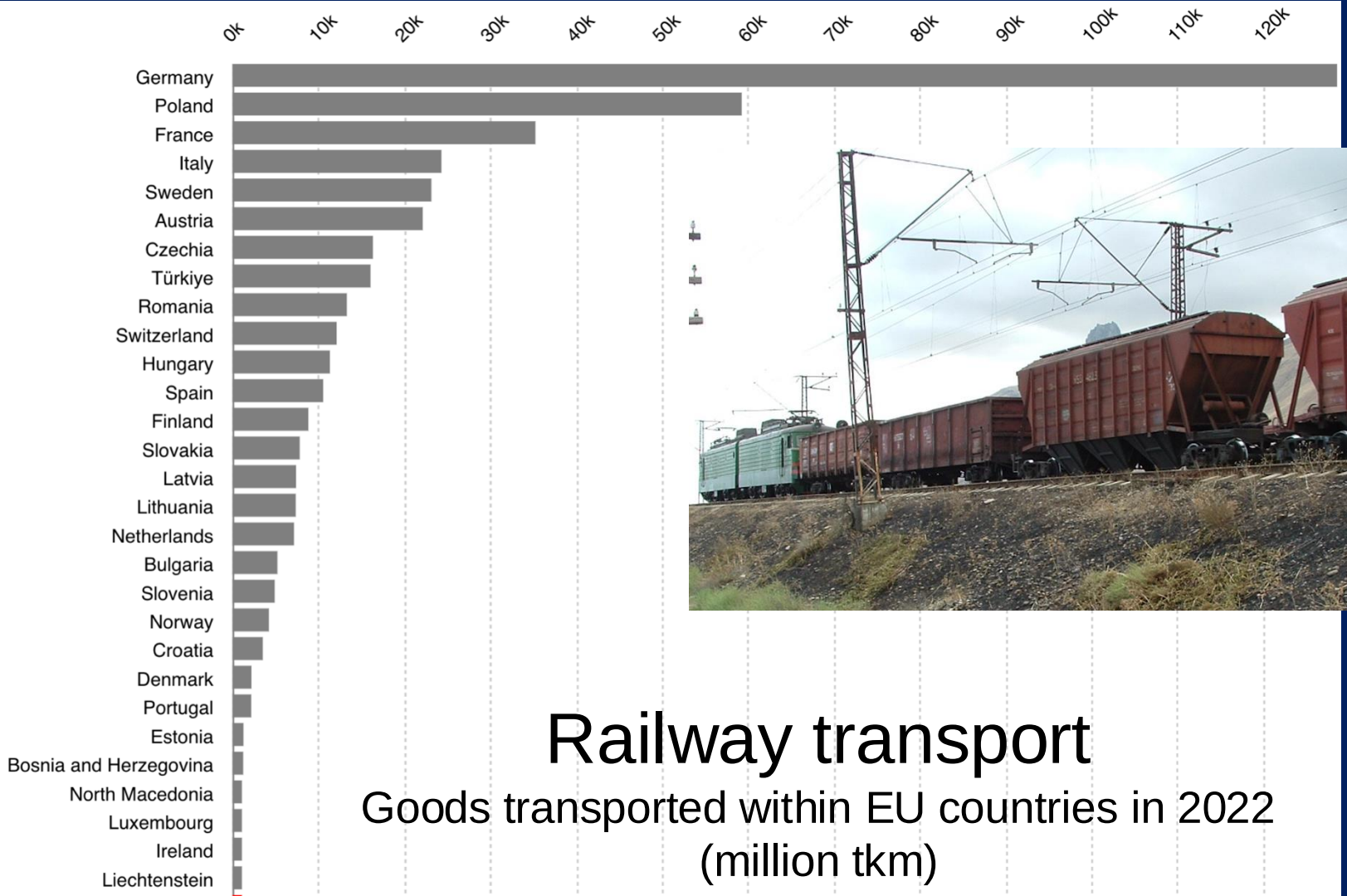
Evaluation of transport modes according to the criteria of large senders

Transport modes	Delivery speed "from door to door"	Frequency of shipments (planned a day)	Reliability (Compliance with delivery)	Ability to carry different goods	Accessibility (number of served geographic locations)	Cost
Railway	3	4	3	2	2	3
Waterway	4	5	4	1	4	1
Road	2	2	2	3	1	4
Pipeline	5	1	1	5	5	2
Air	1	3	5	4	3	5



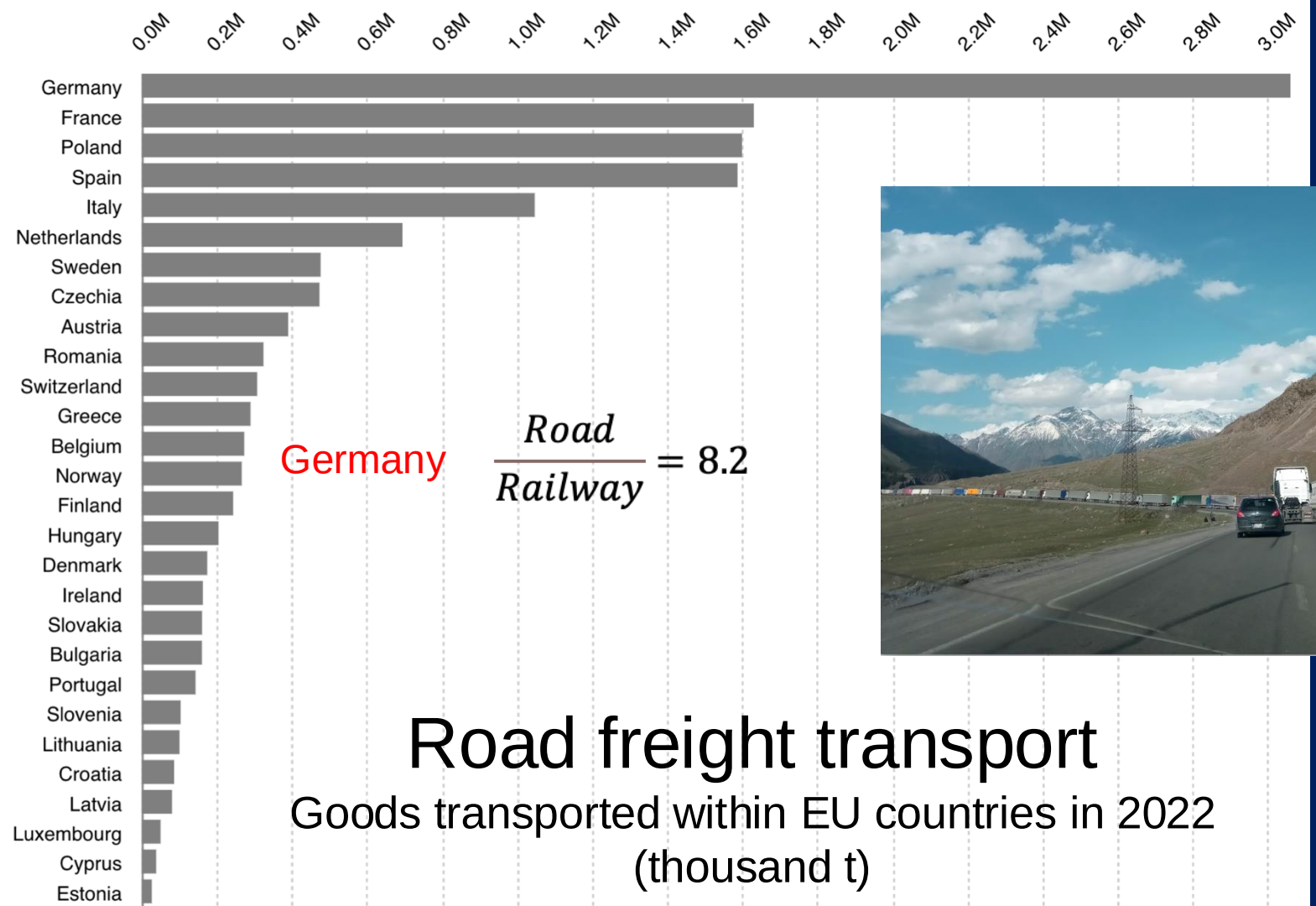
Railway transport

Goods transported within EU countries in 2022 (thousand t)



Railway transport

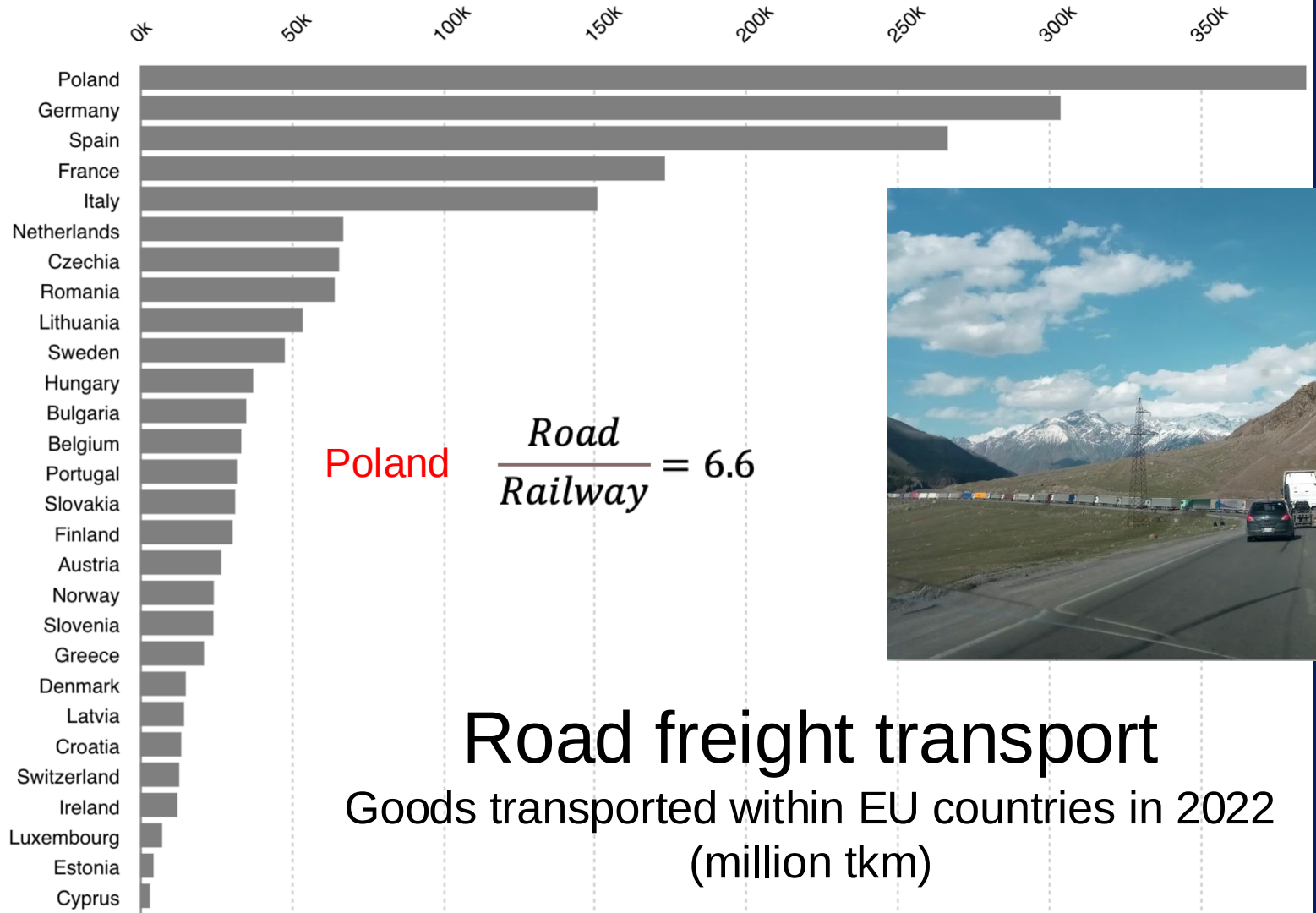
Goods transported within EU countries in 2022 (million tkm)



Germany $\frac{Road}{Railway} = 8.2$

Road freight transport

Goods transported within EU countries in 2022 (thousand t)

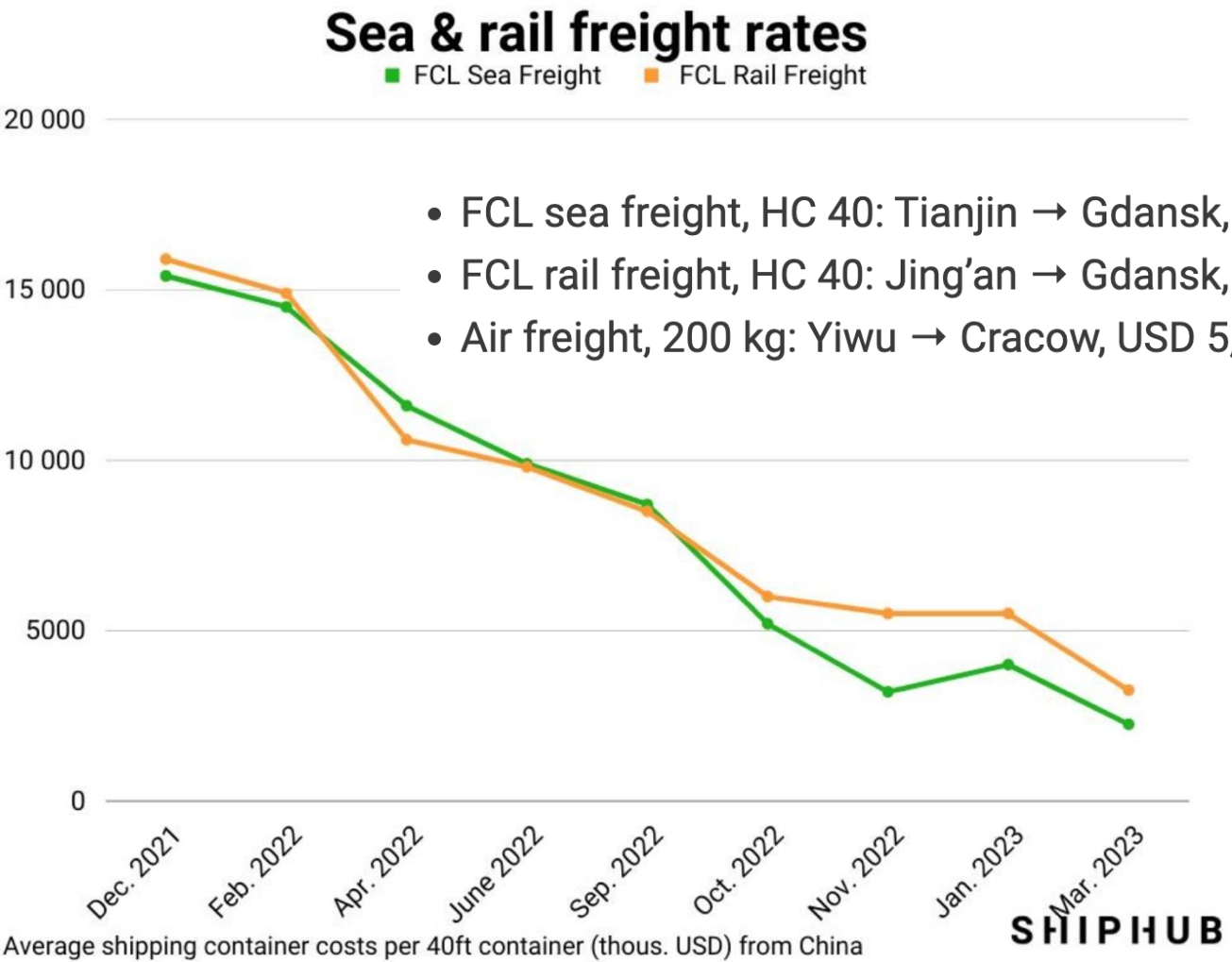


Poland $\frac{Road}{Railway} = 6.6$

Road freight transport

Goods transported within EU countries in 2022 (million tkm)

Transport corridors of East - West



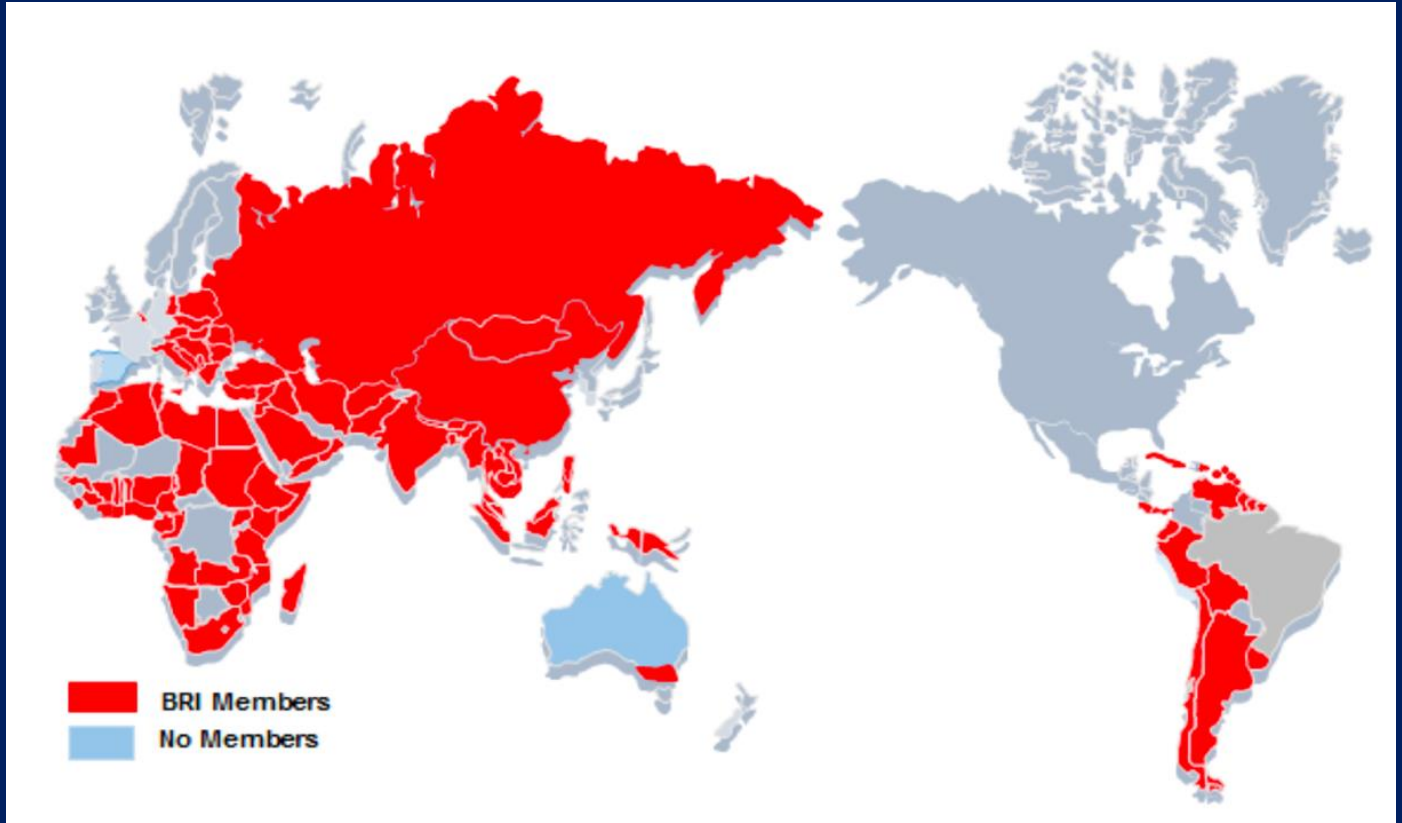
Sea & rail freight rates (FCL), 2021-2023

- FCL sea freight, HC 40: Tianjin → Gdansk, USD 1,500-3,000 (35-40 days)
- FCL rail freight, HC 40: Jing'an → Gdansk, USD 2,500-4,000 (25-28 days)
- Air freight, 200 kg: Yiwu → Cracow, USD 5,800 (10 days).

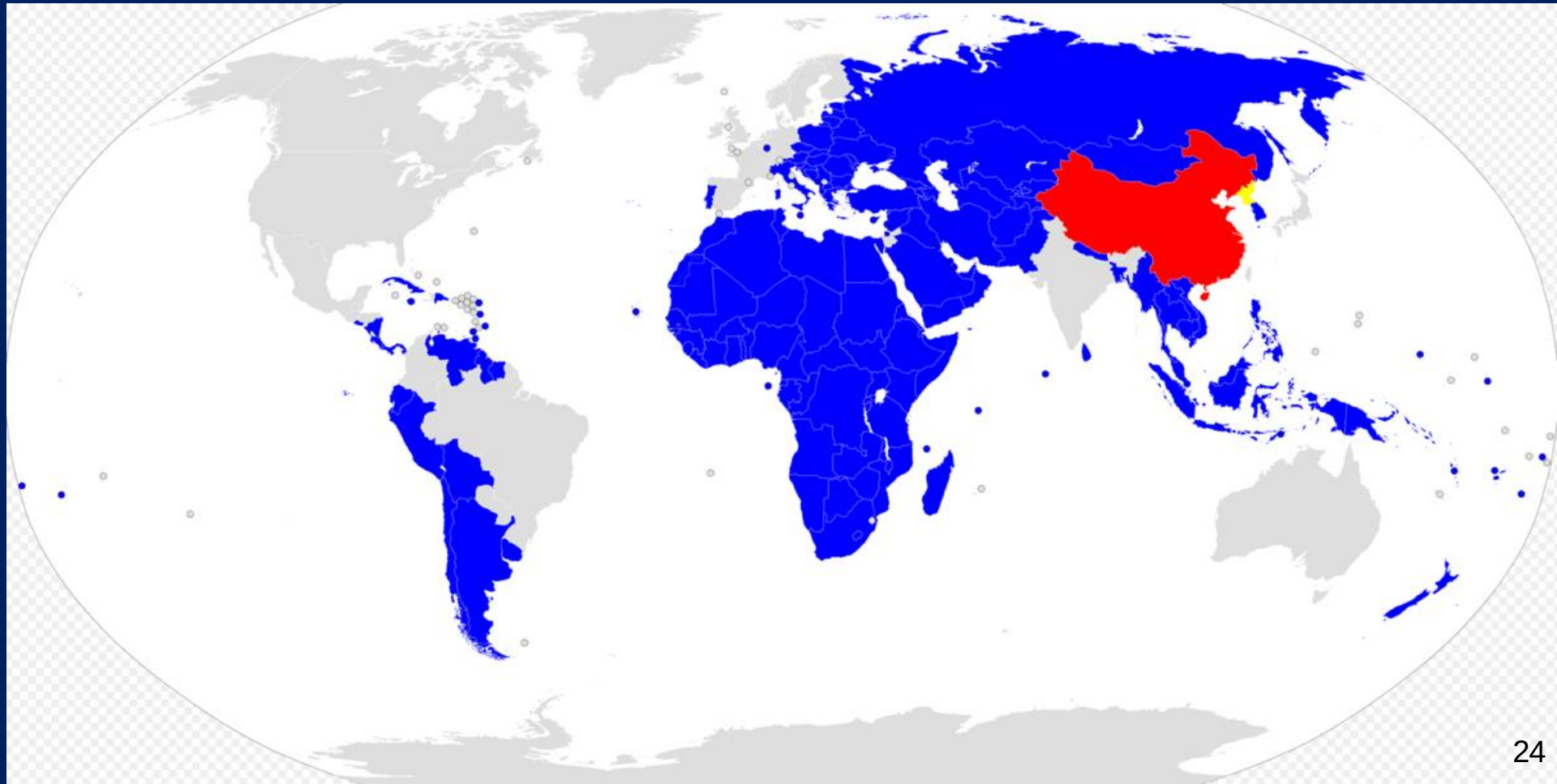
System BRI (Belt and Road Initiative) project turned 10 this year

According to various sources, the cost of the BRI project is currently approaching or has already exceeded one trillion US dollars. This is the most expensive project in the history of mankind

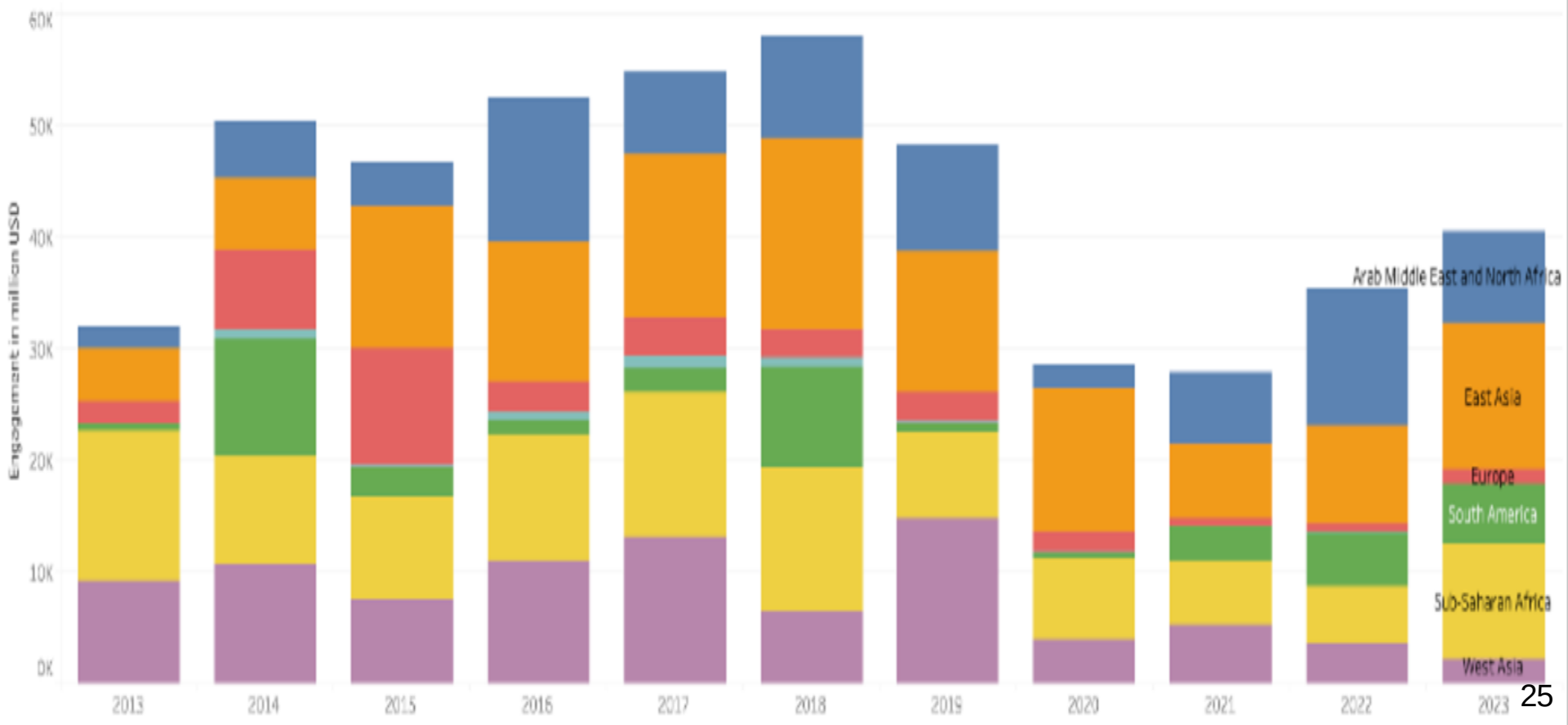
BRI project participants who signed the MoU (situation for 2019)



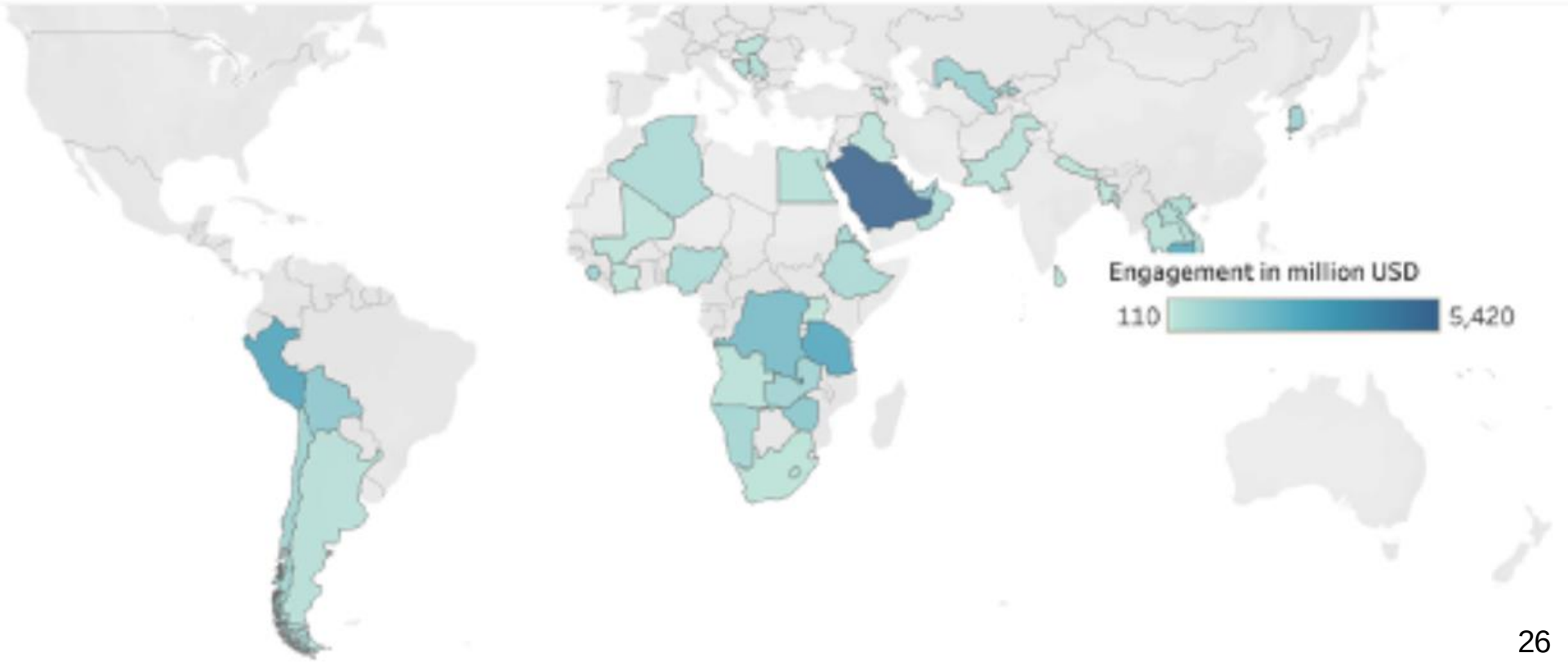
BRI project participants who signed the MoU (situation for 2023)



China's investment activity in various regions of the world over the 10 years of the BRI project

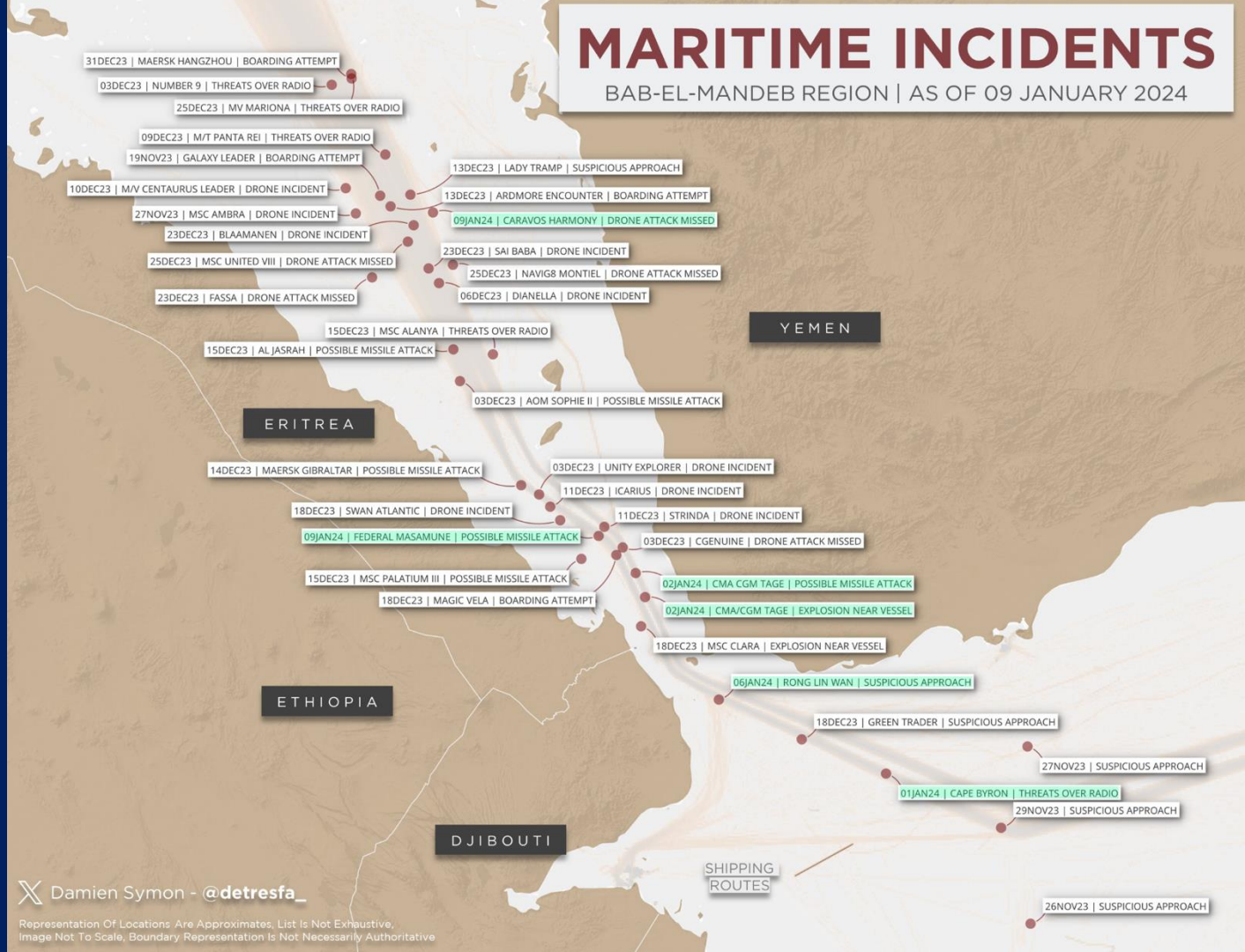


China's investments in various countries under the BRI project in 2023



Map of the BRI project in 2022. Orange dots on the map indicate existing investment projects in China. The red line outlines the regions that are interested in the development of the project

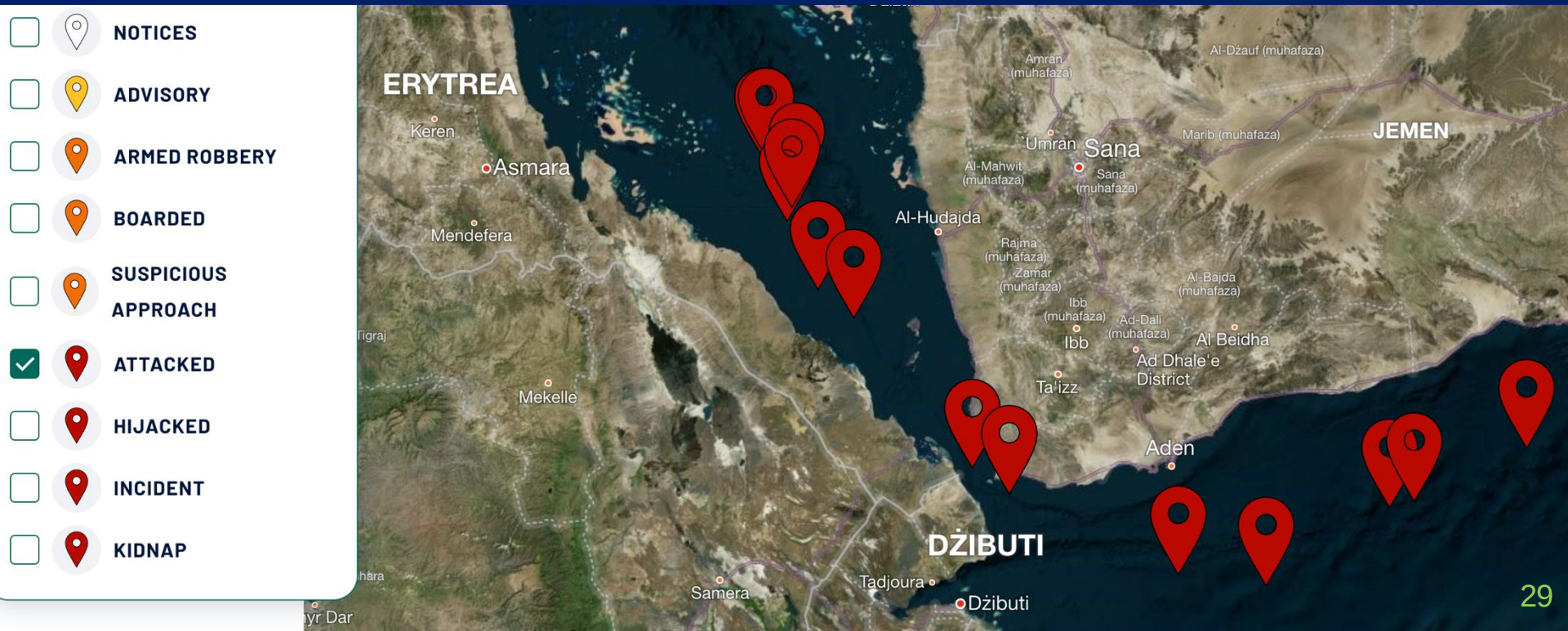
Map of shipping incidents in the Yemen area



Map of recent shipping incidents in the Yemen area

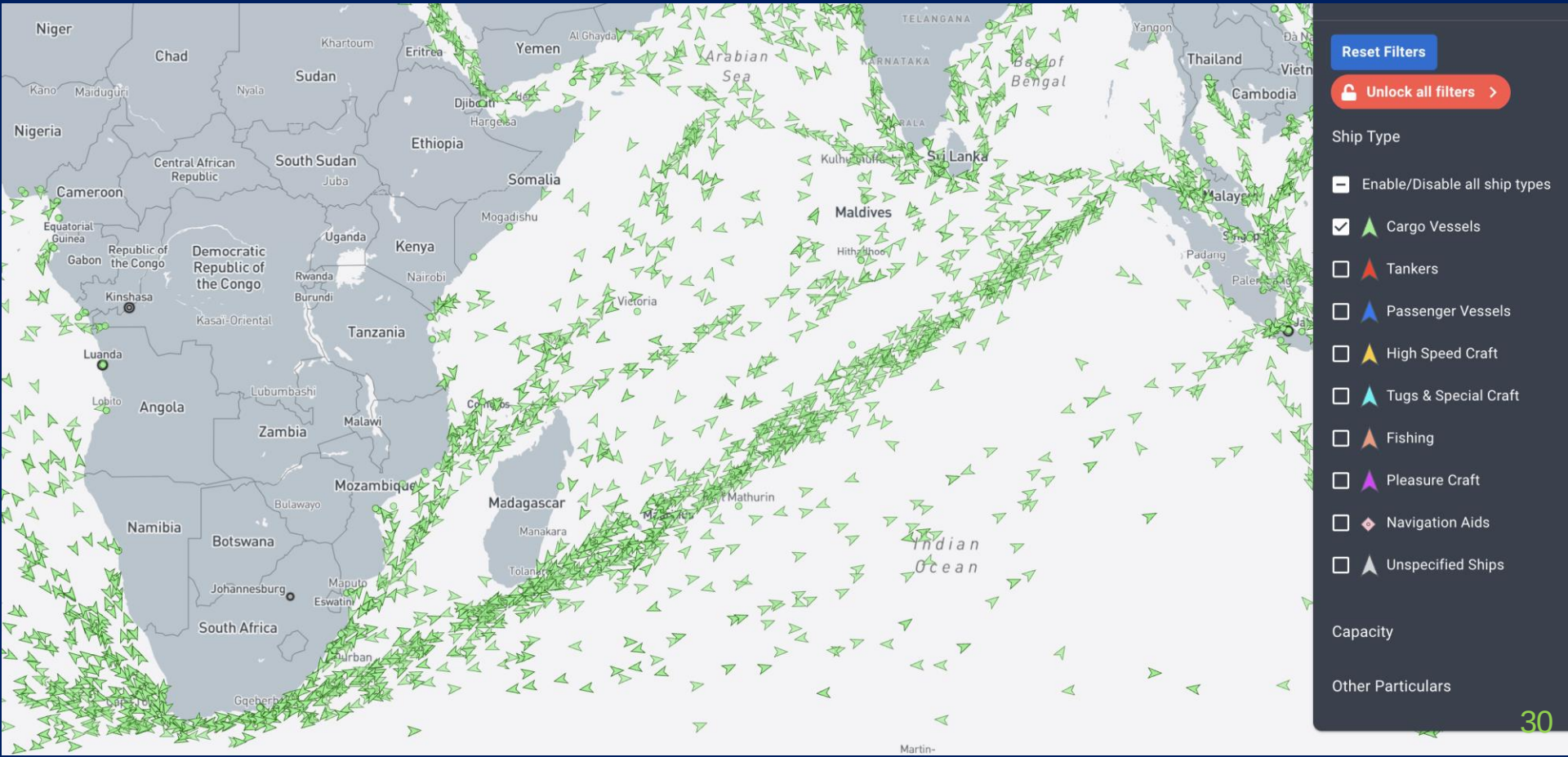
From 10 July 2024 to 30 August 2024

United Kingdom Maritime Trade Operations



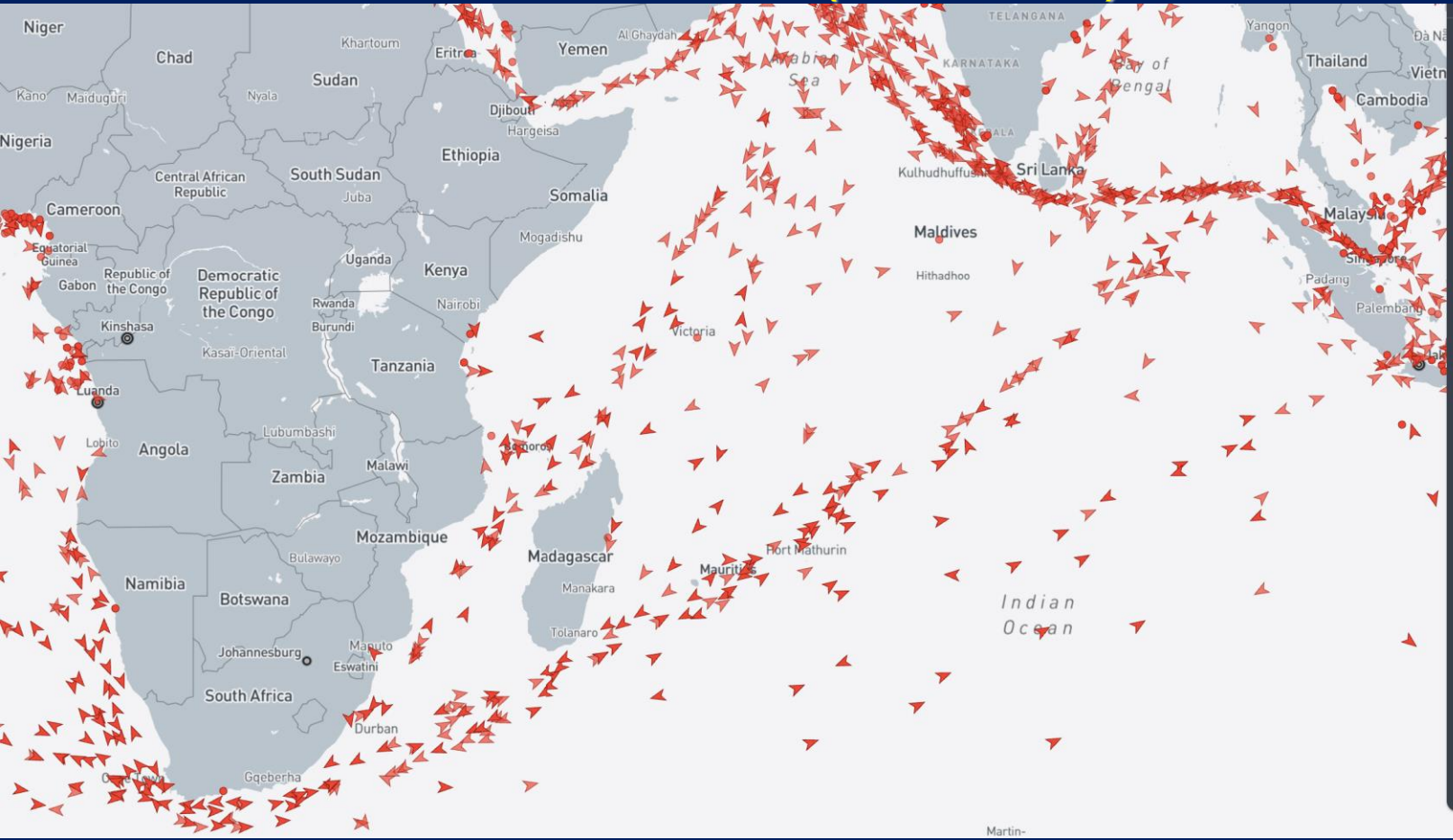
Traffic of cargo vessels in corridors of East – West

1.09.2024 (Marine Traffic)



Traffic of tankers in corridors of East – West

1.09.2024 (Marine Traffic)



Reset Filters

Unlock all filters

Ship Type

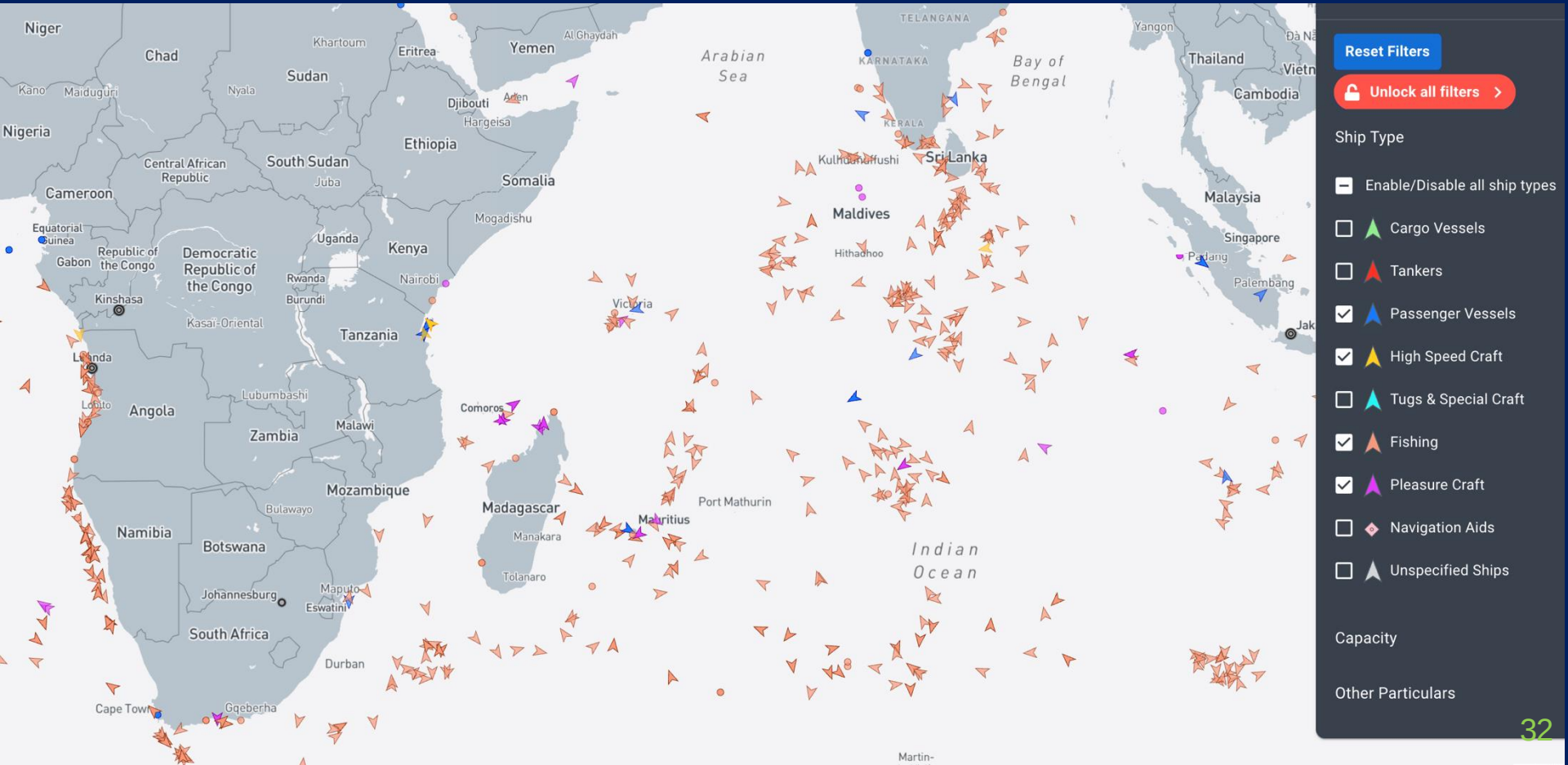
- [ ] Enable/Disable all ship types
- [ ] Cargo Vessels
- [x] Tankers
- [ ] Passenger Vessels
- [ ] High Speed Craft
- [ ] Tugs & Special Craft
- [ ] Fishing
- [ ] Pleasure Craft
- [ ] Navigation Aids
- [ ] Unspecified Ships

Capacity

Other Particulars

Traffic of other types ships in corridors of East – West

1.09.2024 (Marine Traffic)



Reset Filters

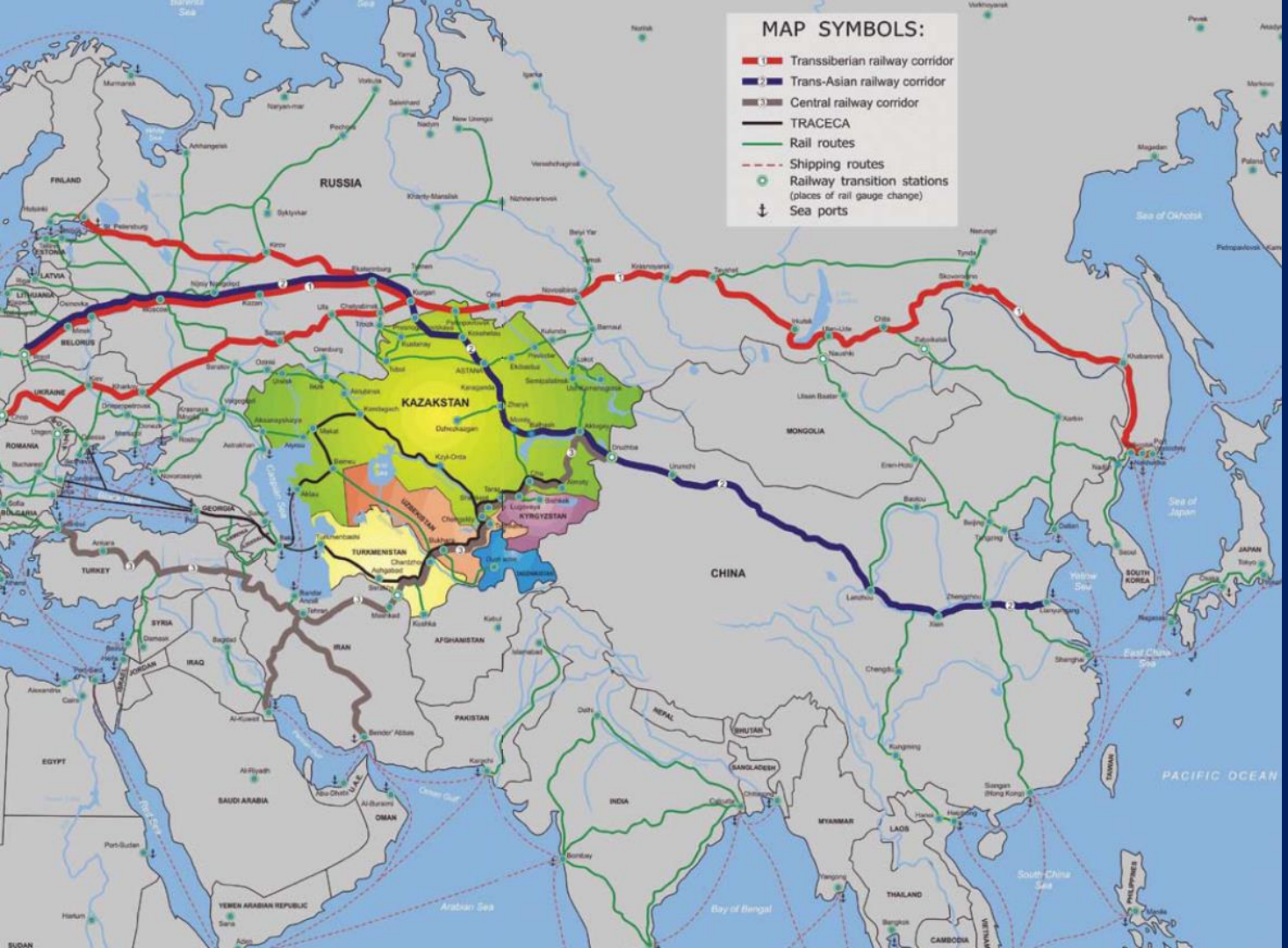
Unlock all filters

Ship Type

- [ ] Enable/Disable all ship types
- [ ] Cargo Vessels
- [ ] Tankers
- [x] Passenger Vessels
- [x] High Speed Craft
- [ ] Tugs & Special Craft
- [x] Fishing
- [x] Pleasure Craft
- [ ] Navigation Aids
- [ ] Unspecified Ships

Capacity

Other Particulars

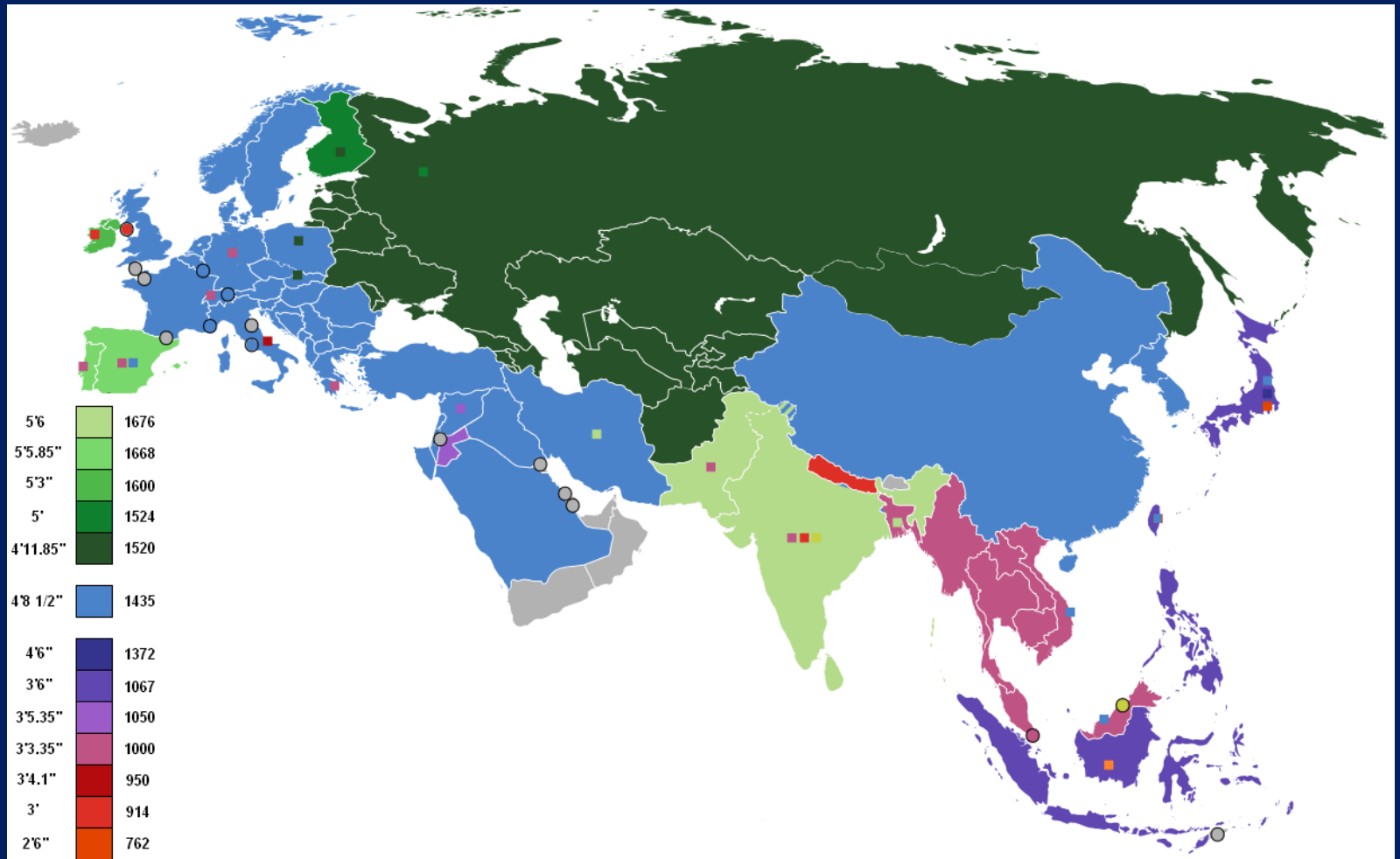


The main railway routes of delivery of containers before the start of the active phase of Russian aggression in Ukraine

The problems of goods delivery by railway transport in Russia, according to the journal «Контейнерный бизнес»

- An acute shortage of container platforms and large containers;
- Inadequate pricing policy, a high rate of charge for the protection of containers, no preferential payment delivery of empty containers and platforms, in general Transsiberian railway rates are uncompetitive;
- The presence of "bottlenecks" such as a railway station Nakhodka-Eastern;
- The lack of proper service, the lack of process discipline;
- Logistical problems, lack of legislative framework, Russia has extremely confusing and contradictory customs legislation;
- The lack of repair capacity, which is not enough even for the maintenance of rolling stock;
- The absence of a terminal for handling of large containers at intermediate stations;
- The negative attitude in the world to the political and economic situation in Russia and, in particular, to its transport communications;
- The absence of inter-state agreements on tariff rates.

Width of railway track on the Eurasian continent



Ways of solution for the problem of goods delivery by railway transport form Russia, the problem of track gauge differences in the countries of the former Soviet Union (1520 mm) and in most EU countries (1435 mm) :

- transshipment;
- rollout wheelsets from under the wagon with subsequent replacement with another wheelset with another distance between the wheels (this technology is not sufficiently effective, because it allows processing approximately 4 four-axle wagons per hour);
- complete replacement of the bogies with wheelsets (for example, on the border of Ukraine - Romania station Vadul-Siret allows you to process 150 wagons per day);
- use of special bogies with wheelsets with changing the axle wheelbase;
- continuation broad- or standard-gauge line inland corresponding territory.

TRACECA (acronym: **Tra**nsport **C**orridor **E**urope-**C**aucasus-**A**sia)

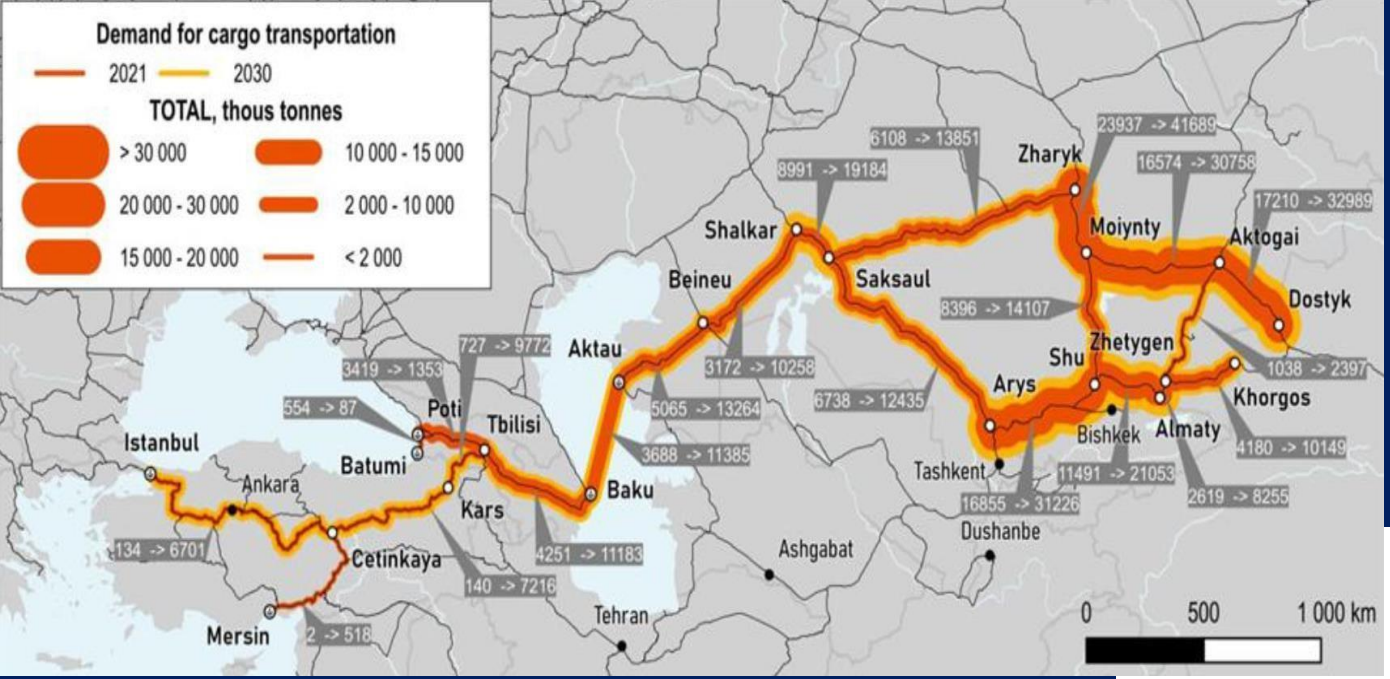
TRACECA was established in May 1993. Now here are 12 countries plus 27 European Union members

China–**C**entral **A**sia–**W**est Asia **E**conomic **C**orridor (abbreviated as **CCAWEC**)

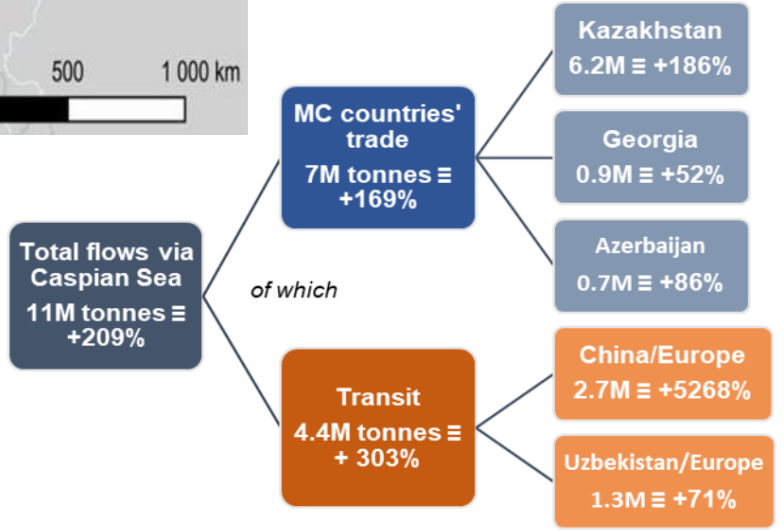
A report on the BRI by the OECD in 2018 classifies the following list of countries as part of the corridor: Albania, Armenia, Azerbaijan, Bosnia, Bulgaria, Georgia, Iran, Iraq, Israel, Jordan, Kyrgyzstan, Lebanon, Macedonia, Moldova, Montenegro, the Palestinian Authority, Romania, Serbia, Syria, Tajikistan, Turkey, Turkmenistan, and Uzbekistan.

Trans-Caspian **I**nternational **T**ransport **R**oute (**TITR)** (Middle Corridor)

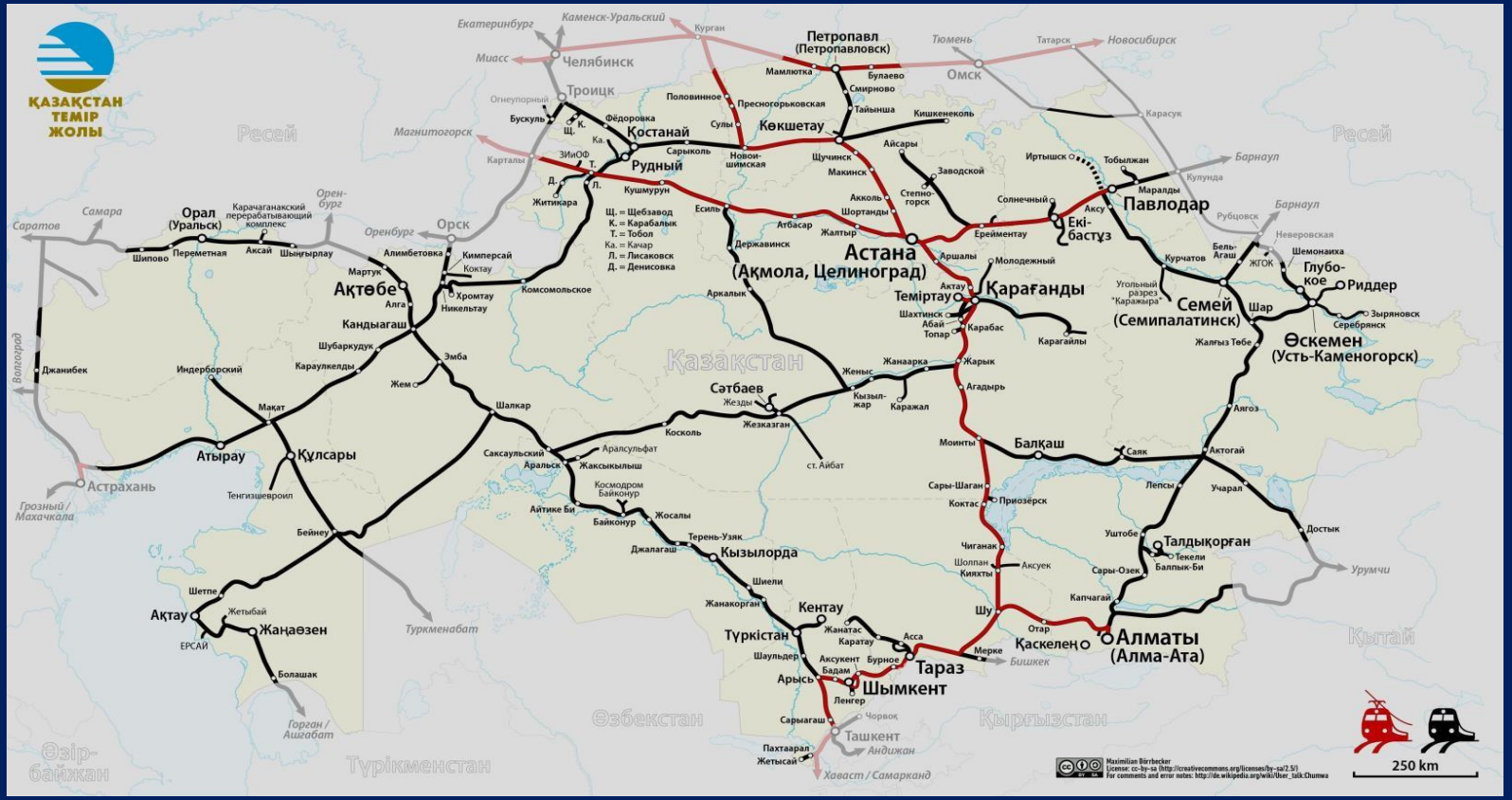
TITR was established in 2013, the railway was operational in 2017. Members: Kazakhstan, Azerbaijan, Georgia, and Turkey; associate members: some companies from China, Romania, and Poland



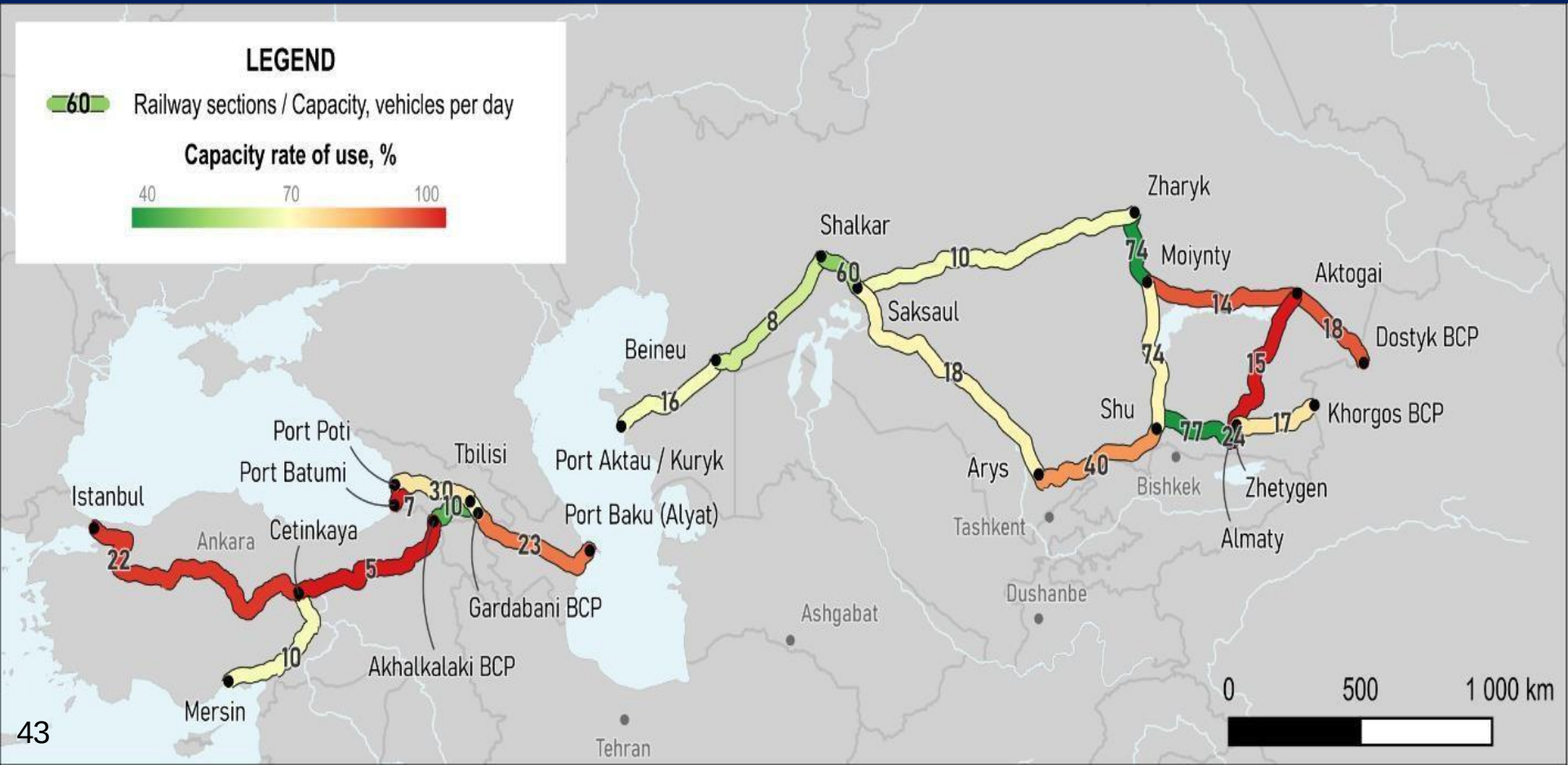
Traffic along the MC via the Caspian Sea is projected to triple by 2030 to 11 million tonnes



Electrification of Kazakhstan's Railway Network



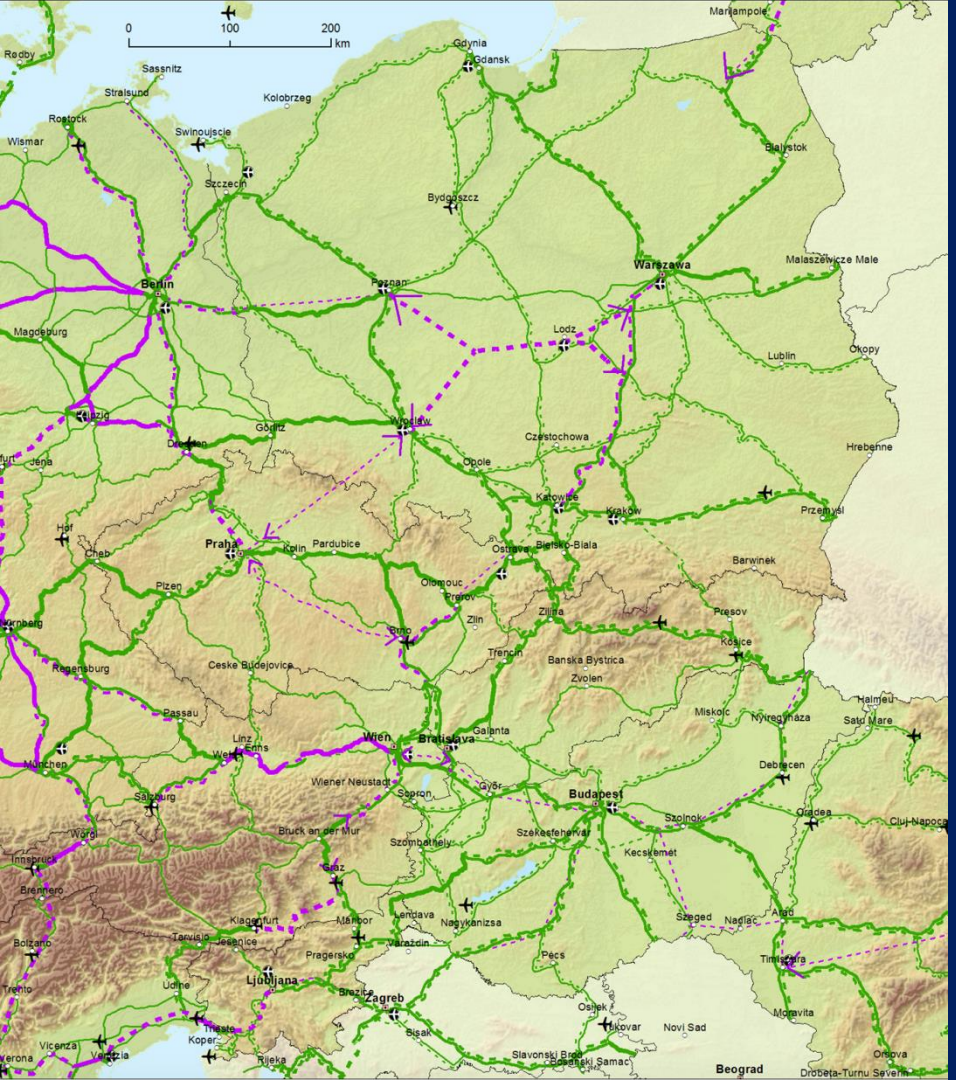
Railways capacities along the Middle corridor



In September 2015, Poland launched the Three Seas Initiative.
It is a forum for political and economic cooperation between 12 countries inhabited by 112 million people: Austria, Bulgaria, Croatia, the Czech Republic, Estonia, Lithuania, Latvia, Poland, Romania, Slovakia, Slovenia and Hungary.

Transport infrastructure of the Balkan Peninsula and Chinese investments within the framework of the BRI project

Core Network Corridors on the TEN-T



Comprehensive	Core	
		Conventional rail / Completed
		Conventional rail / To be upgraded
		Conventional rail / Planned
		High speed rail / Completed
		To be upgraded to high speed rail
		High speed rail / Planned
		Airports

Core Network Corridors on the TEN-T

Comprehensive	Core	
		Road / Completed
		Road / To be upgraded
		Road / Planned
		Ports
		RRT
		Airports

Core Network Corridors on the TEN-T

Comprehensive	Core	
		Conventional rail / Completed
		Conventional rail / To be upgraded
		Conventional rail / Planned
		High speed rail / Completed
		To be upgraded to high speed rail
		High speed rail / Planned
		Airports

Core Network Corridors on the TEN-T

Comprehensive	Core	
		Road / Completed
		Road / To be upgraded
		Road / Planned
		Ports
		RRT
		Airports

PKP POLSKIE LINIE KOLEJOWE S.A.

MAPA LINII KOLEJOWYCH

zarządzanych przez PKP Polskie Linie Kolejowe S.A.

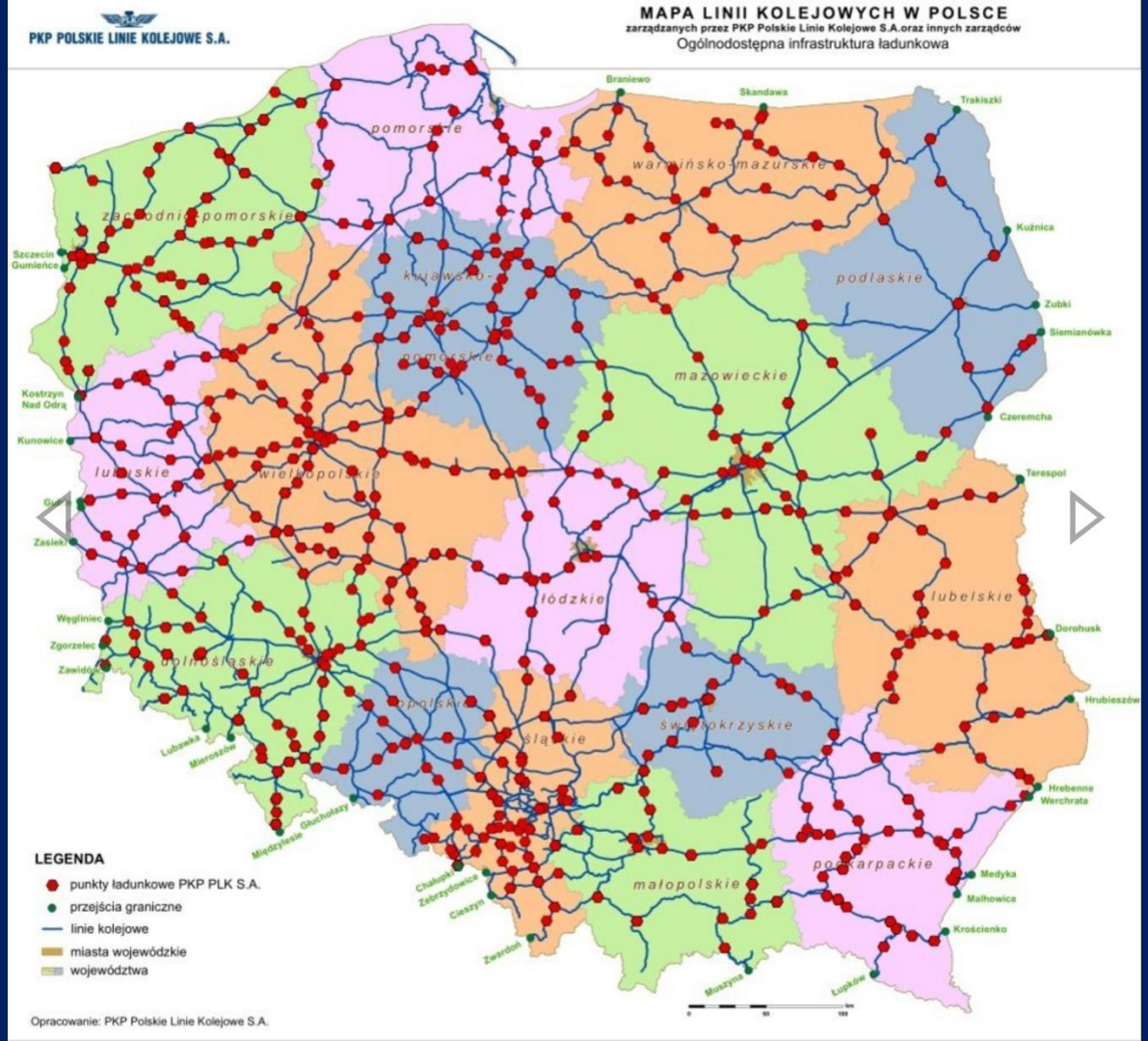
Maksymalne prędkości rozkładowe (stan na dzień 31.12.2023 r.)

LEGENDA

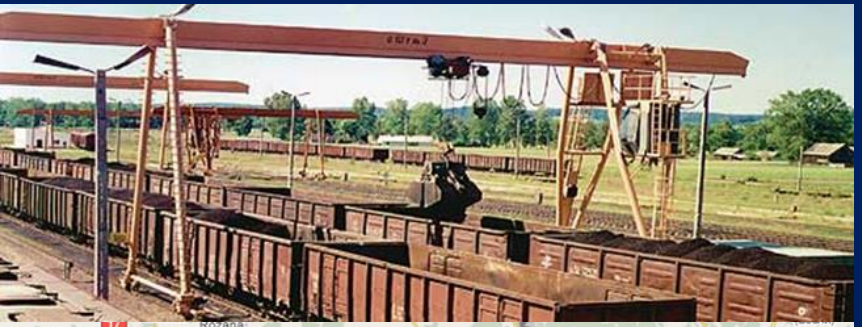
- wybrane punkty eksploatacyjne
- Linie kolejowe zarządzane przez PKP Polskie Linie Kolejowe S.A.
  (ujęte w Tabeli 1 Instrukcji Id-12)
  wg stanu na dzień 08.12.2023 r.

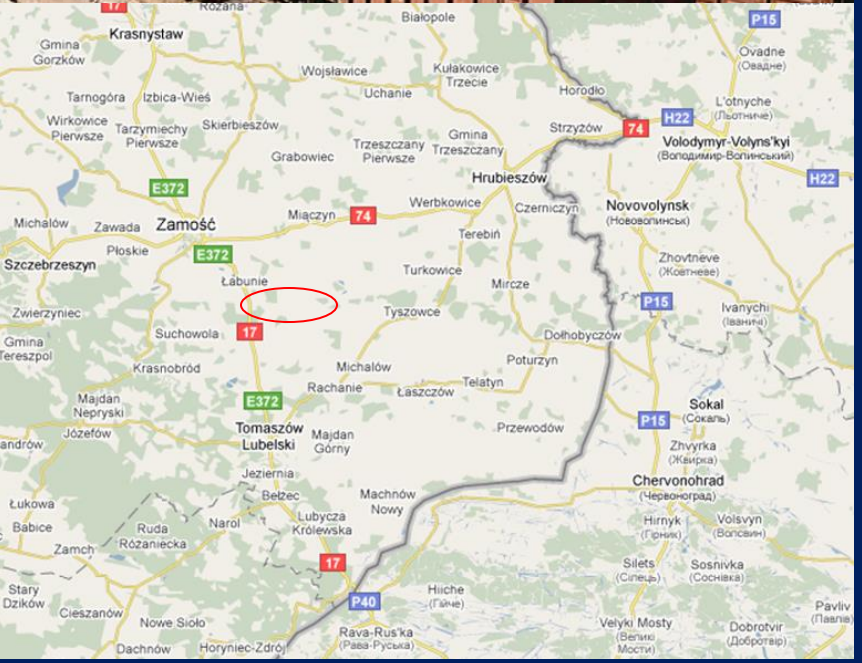
Maksymalne prędkości rozkładowe
(stan na dzień 31.12.2023 r.)

- V = 200 km/h
- 160 < V < 200 km/h
- V = 160 km/h
- 120 ≤ V < 160 km/h
- 80 ≤ V < 120 km/h
- 40 ≤ V < 80 km/h
- 0 < V < 40 km/h
- V = 0 km/h
- granica państwa


PKP POLSKIE LINIE KOLEJOWE S.A.
MAPA LINII KOLEJOWYCH W POLSCE
zarządzanych przez PKP Polskie Linie Kolejowe S.A.oraz innych zarządców
Ogólnodostępna infrastruktura ładunkowa
pomorskie
warmińsko-mazurskie
zachodniopomorskie
kujawsko-pomorskie
podlaskie
mazowieckie
lubuskie
wielkopolskie
łódzkie
lubelskie
dolnośląskie
opolskie
świętokrzyskie
śląskie
podkarpackie
małopolskie
Braniewo
Skandawa
Trakiszki
Kuźnica
Szczecin Gumieńce
Zubki
Siemianówka
Kostrzyn Nad Odrą
Czeremcha
Kunowice
Terespol
Zasieki
Dorohusk
Węgliniec
Zgorzelec
Hrubieszów
Lubawka
Mieroszów
Hrebenne
Werchrata
Międzylesie
Głuchołazy
Medyka
Chałupki
Zebrzydowice
Malhowice
Cieszyn
Krościenko
Zwardoń
Muszyna
Łupków
LEGENDA
punkty ładunkowe PKP PLK S.A.
przejścia graniczne
linie kolejowe
miasta wojewódzkie
województwa
Opracowanie: PKP Polskie Linie Kolejowe S.A.

Terminal in Szczebrzeszyn



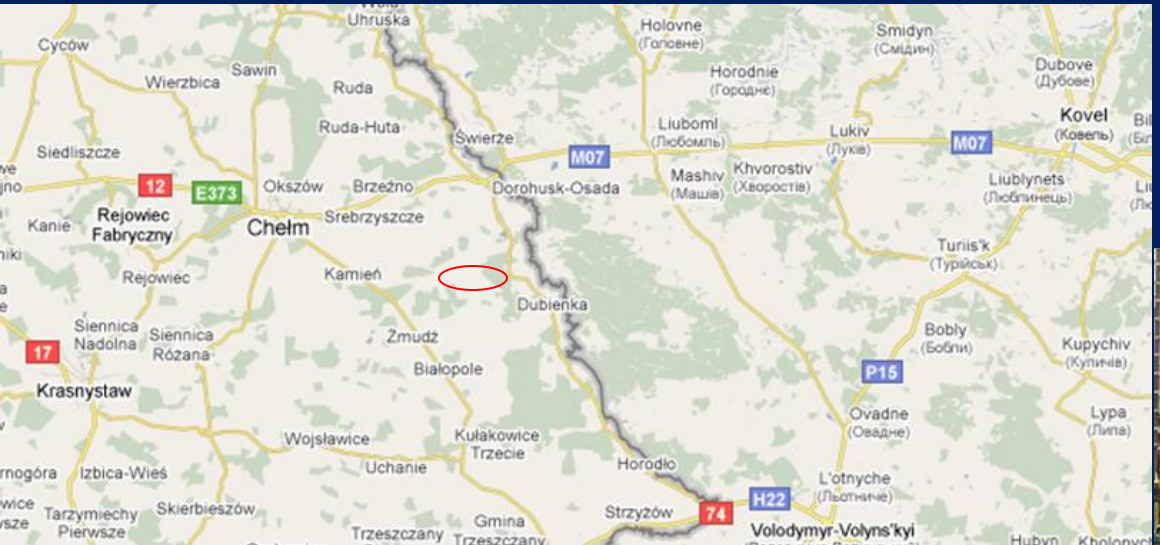


Daily volume of transshipment

Granular materials:	220 wagons
Steel products:	40 wagons
Grain:	40 wagons
Goods in bags and pallets:	20 wagons
Bulk materials:	20 wagons

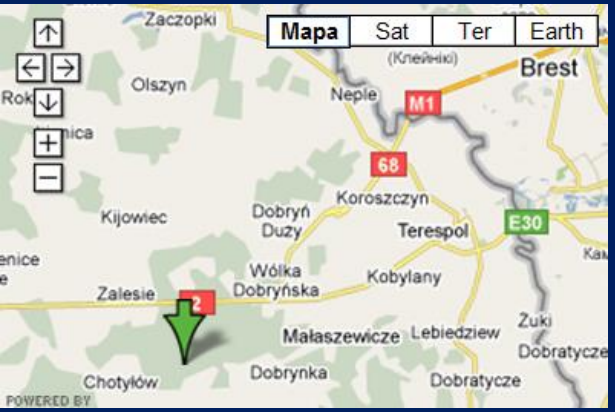
Terminal in East Chełm

Granular materials: coal, stone, coke, ore, animal manure, etc.;
Steel products in coils, rolls, bags;
Structural steel, instrumental and construction purposes;
Ingots and slabs of steel and cast iron;
General-purpose oil;
Wood and timber;
Goods in bags and pallets;
Other goods by prior agreement.



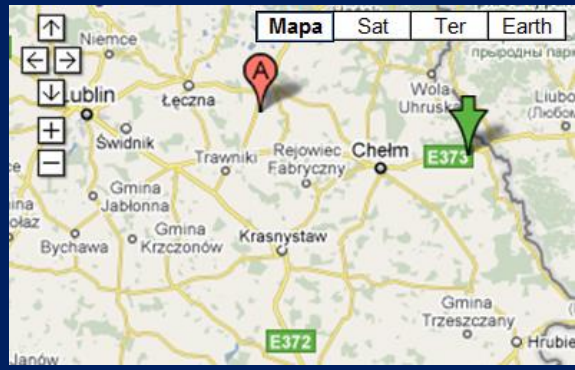
In 2010 was opened near border logistics center Małaszewicze with the annual transshipment of 240 thousand TEU and simultaneous warehousing of 1350 TEU

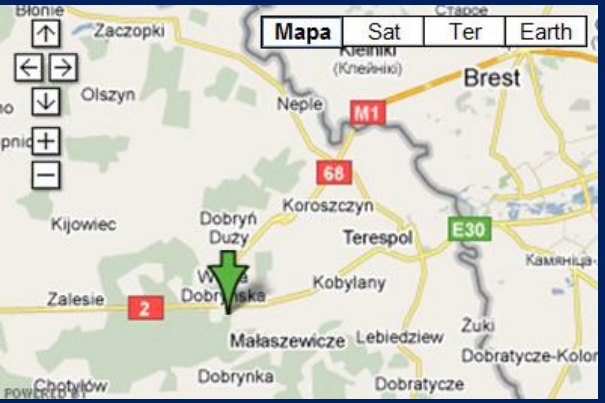
Some additional terminals on the eastern border of Poland



Transhipment Terminal Wólka Zalesie

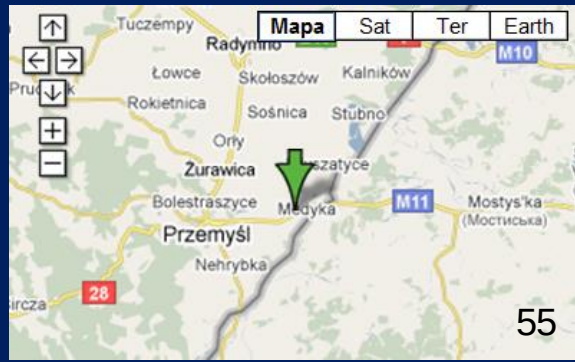
Transhipment Terminal Dorohusk
PS Trade Trans Sp. z o.o. Dorohusk



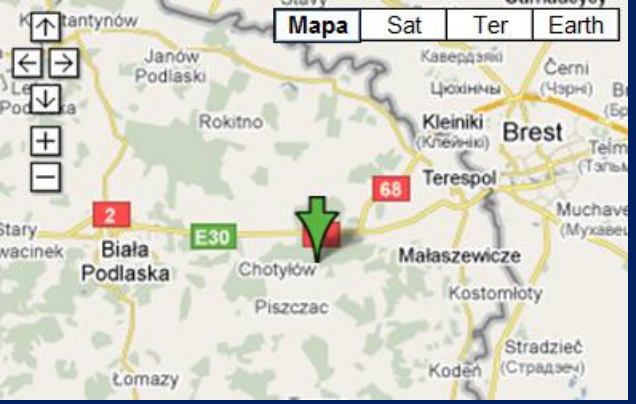


Transhipment Terminal Zaborze Zalesie

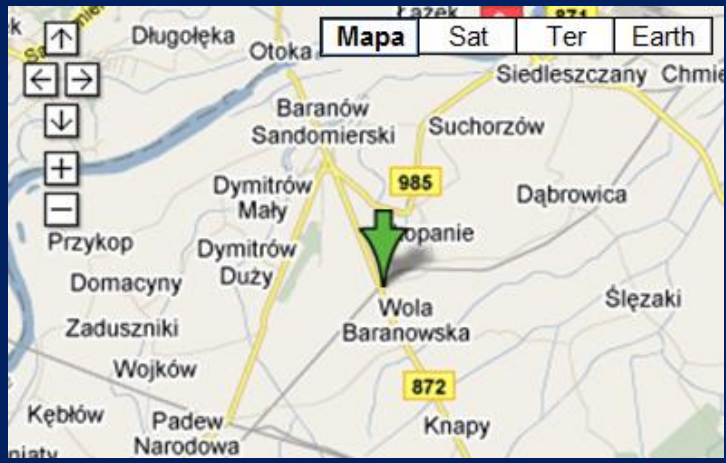
Railport Medyka
Trade Trans Sp. z o.o. Medyka



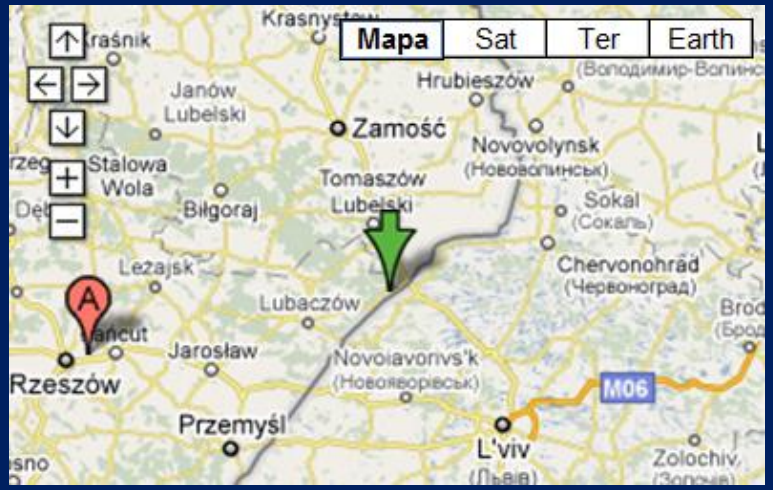
Some additional terminals on the eastern border of Poland



Transgaz S.A.
Zalesie

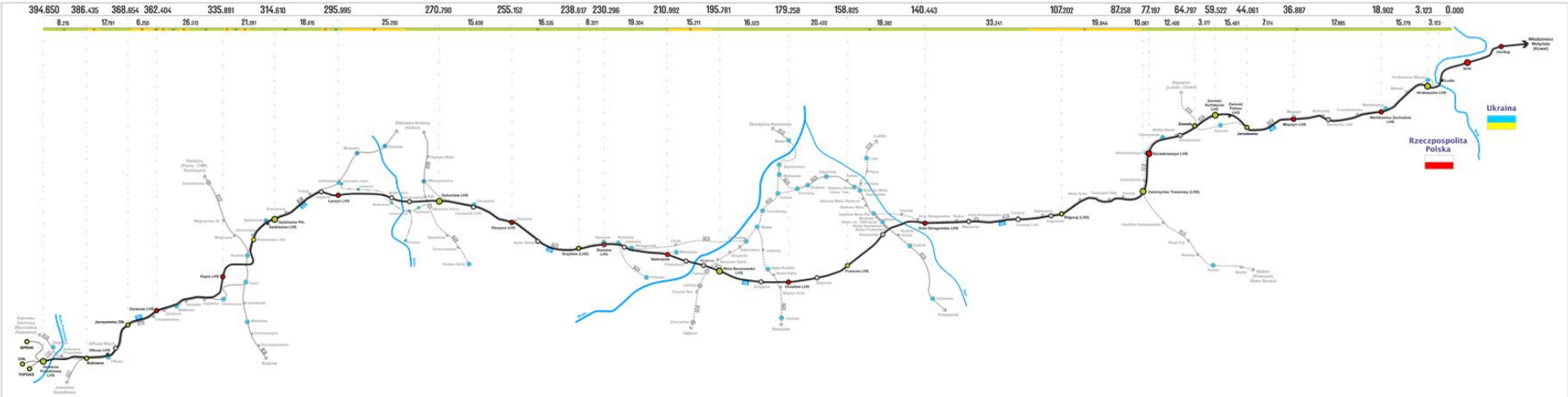


Trade Trans Karya Sp. z o.o.
Customs warehouse and transshipment terminal
PKP LHS station Wola Baranowska
Baranów Sandomierski



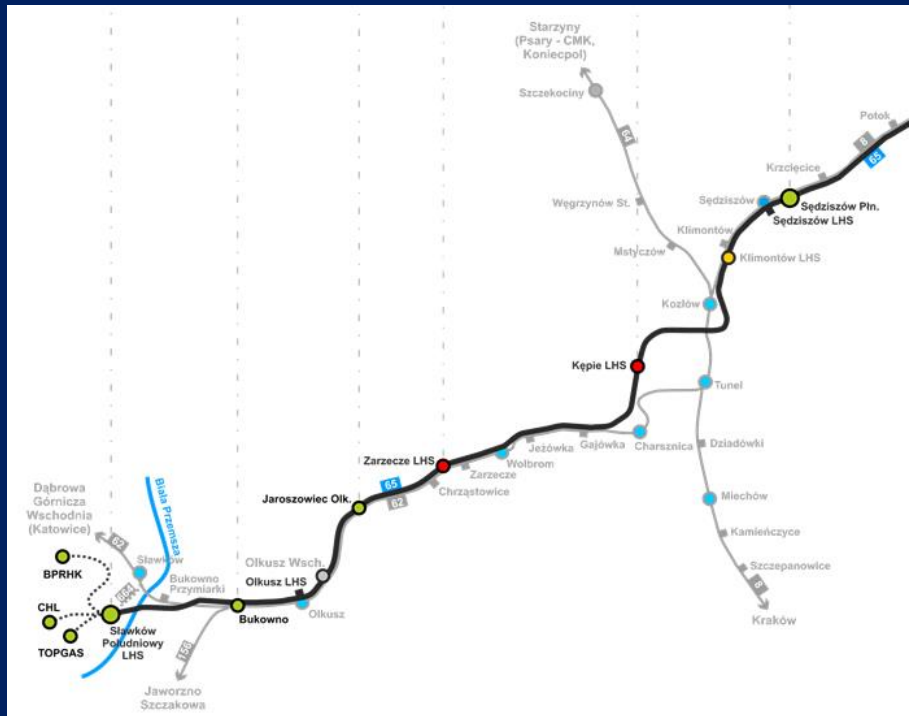
P.P.H.U. UKPOL Sp. z o.o. Werchrata

The broad gauge on Polish territory (Hrubieszów– Sławków) line LHS nr 65



Linia Hutnicza Szerokotorowa
(d. Linia Hutniczo-Siarkowa)
oraz przyległe szlaki kolejowe

The length of the line is 394.6 km long and it is the most launched to the West part of the 1520 mm railway network



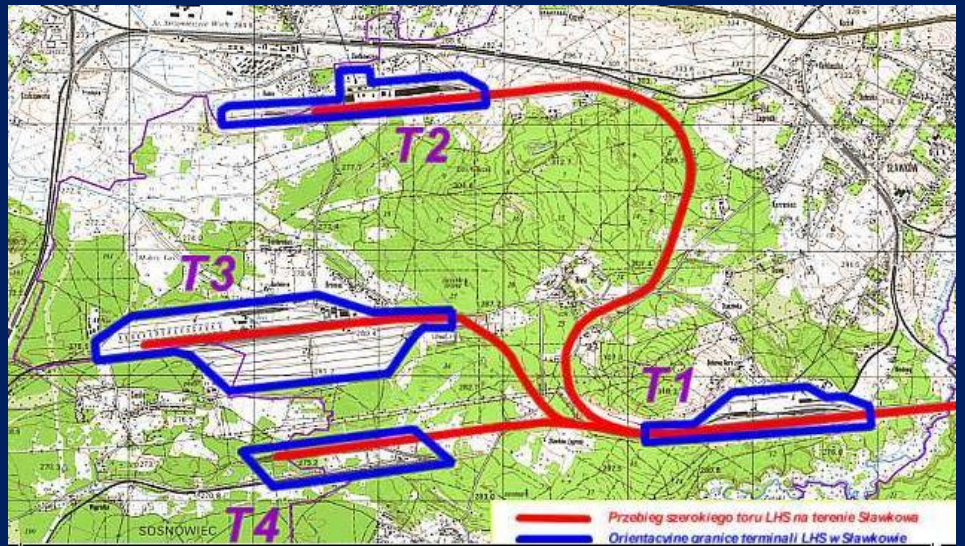
Linia Hutnicza Szerokotorowa

(d. Linia Hutniczo-Siarkowa)

oraz przyległe szlaki kolejowe

Sławków Terminals

Terminal T1 – PKP station «South Sławków LHS»
Polzug Polska sp z.o.o – transshipment of containers.
Company **PCC Cargo** – deals with overloading of liquid chemical products, has own warehouses and unloading - loading machines.
Jas FBG – wide range of transported goods and customs services.
Company "**UKPOL**" overloading of bulk materials (cement).



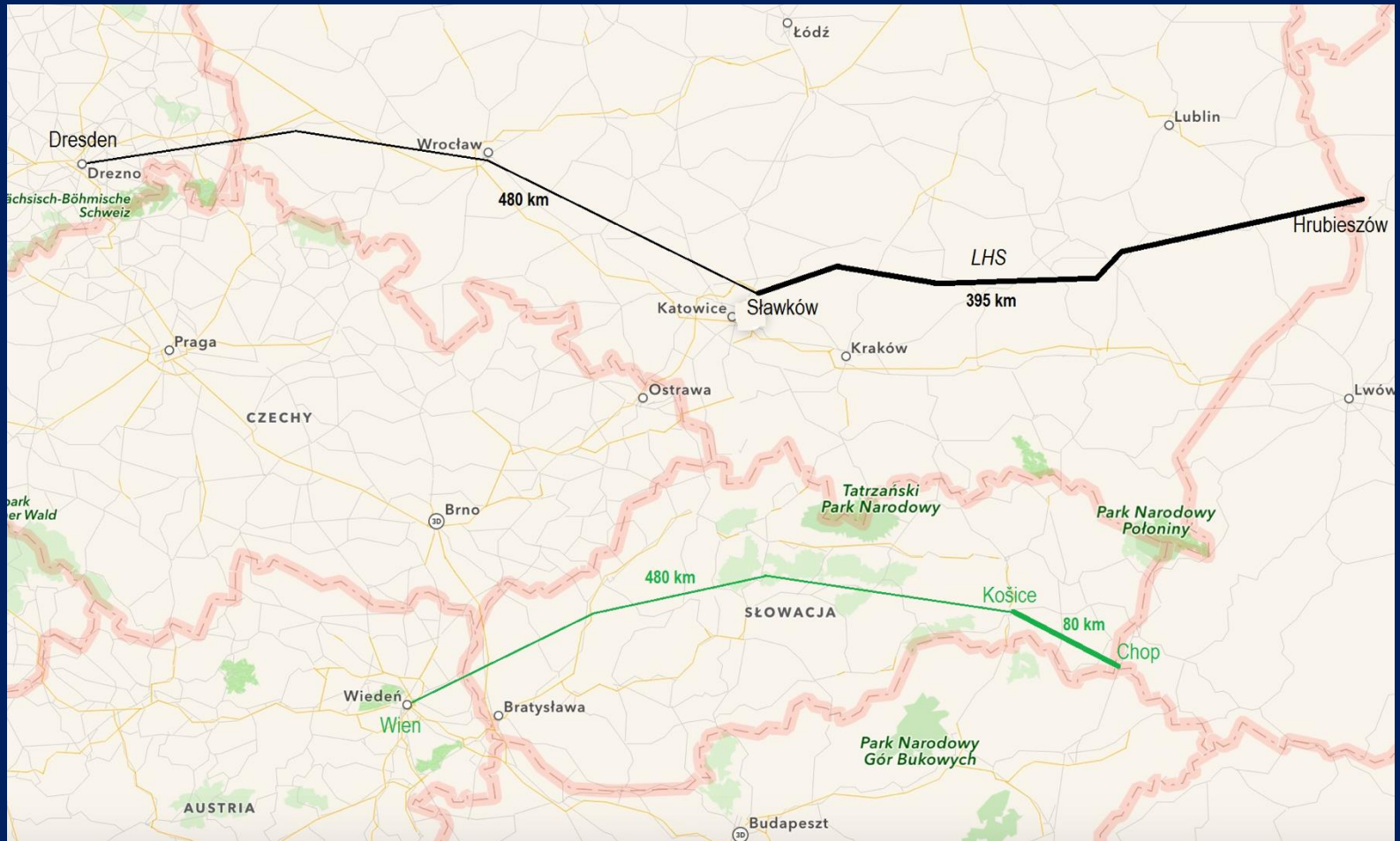
Terminal T2 – Overload base of ore for metallurgical plant Huta Katowice.

Terminal T3 – relates to Centrala Zaopatrzenia Hutnictwa (Support Center of the metallurgical industry). It is the owner of Euroterminal. There is also working **Logistical shopping center**, company **BP Polska** – dealing with overloading of liquefied gases and company **Petro Plus,** dealing with overloading of liquid fuel.

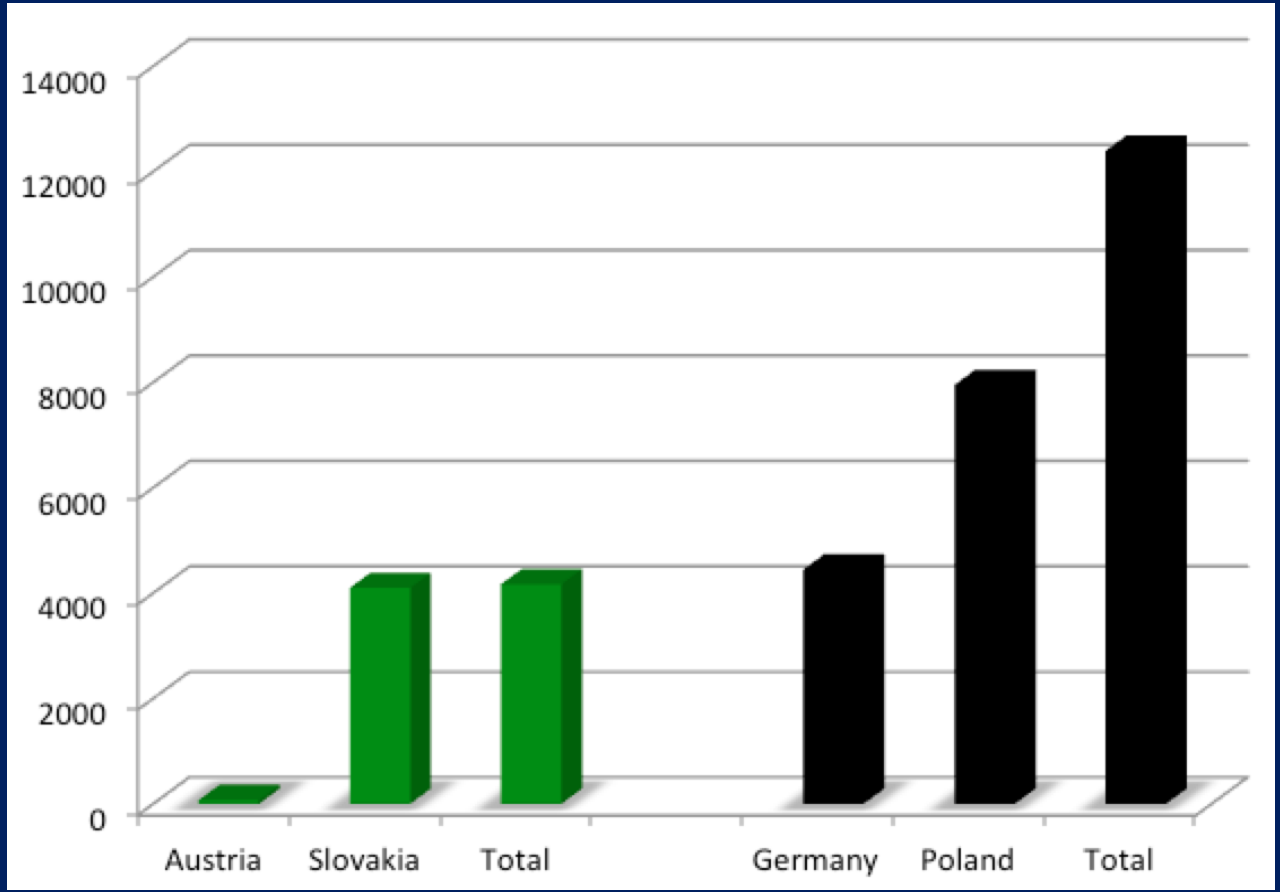
Terminal T4 – Polski Gaz – intended for overloading of liquefied gases.

Sławków, Euroterminal

Comparison of projects of wide (1520 mm) gauge track on the route Chop- Kosice – Wien (route 1) and Hrubieszów – Sławków – Dresden (route 2)



The volume of rail traffic between Russia and EU countries (thous. tonnes) for routes 1 and 2 in 2014

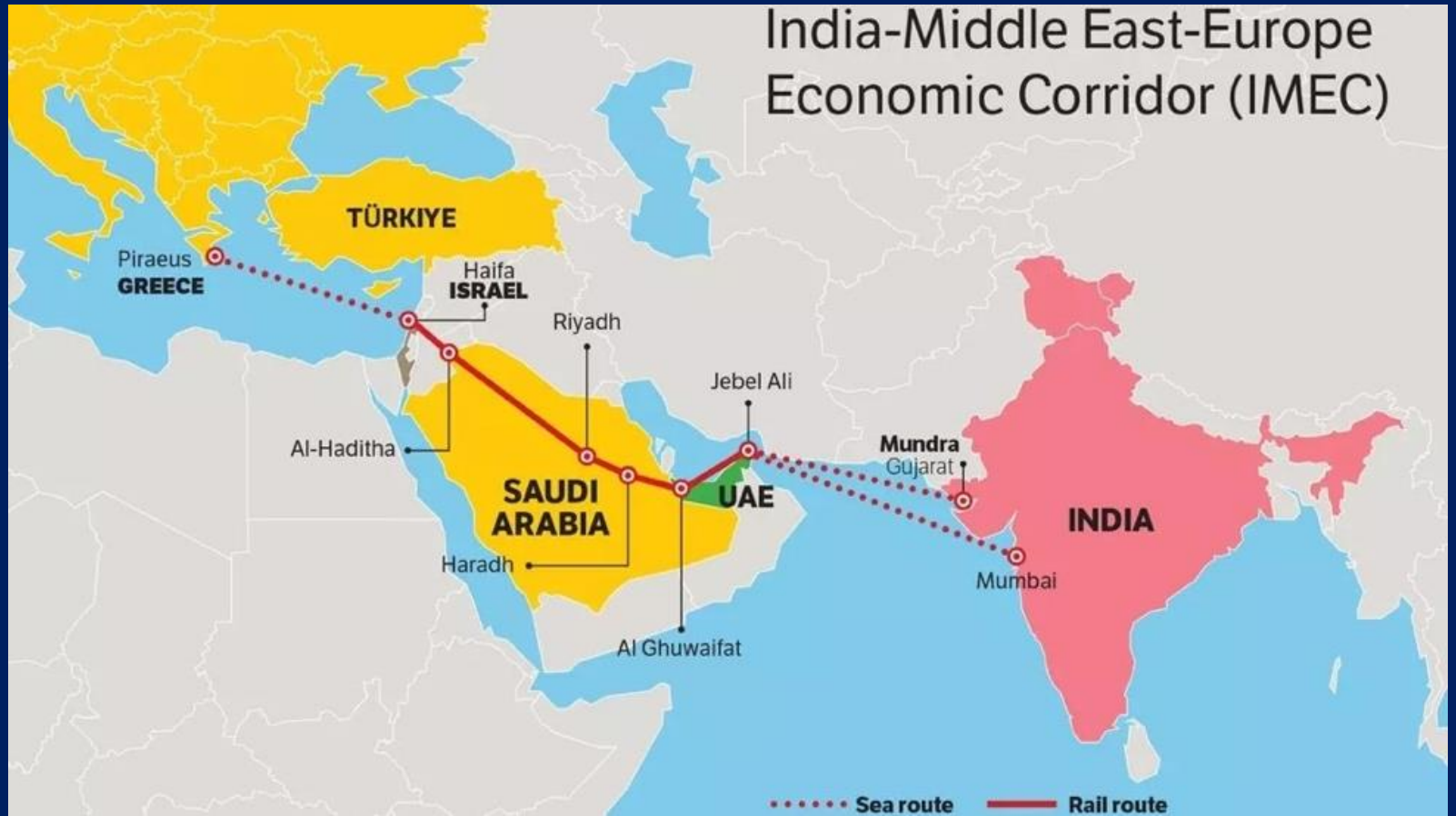


The project completion is scheduled for 2030, with a start of services on some of the sections in 2028

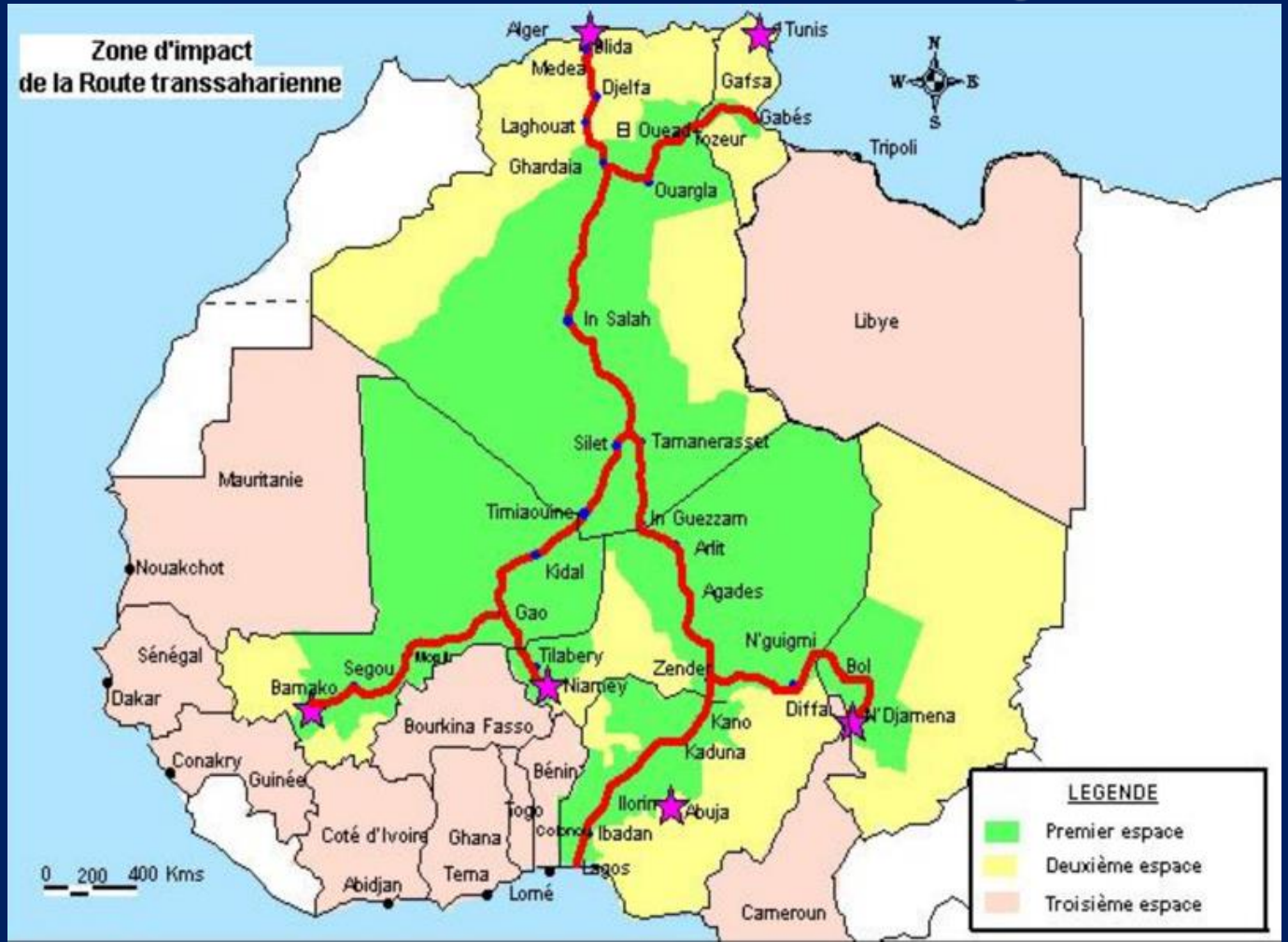
Proposition of standard (1435 mm) gauge in Ukraine

IMEC Project

MoU was signed between European Union, India, United States, Saudi Arabia, United Arab Emirates, France, Germany and Italy



Trans-Saharan Road Corridor Project



Width of railway track in Spain

Total: 14,974 km:

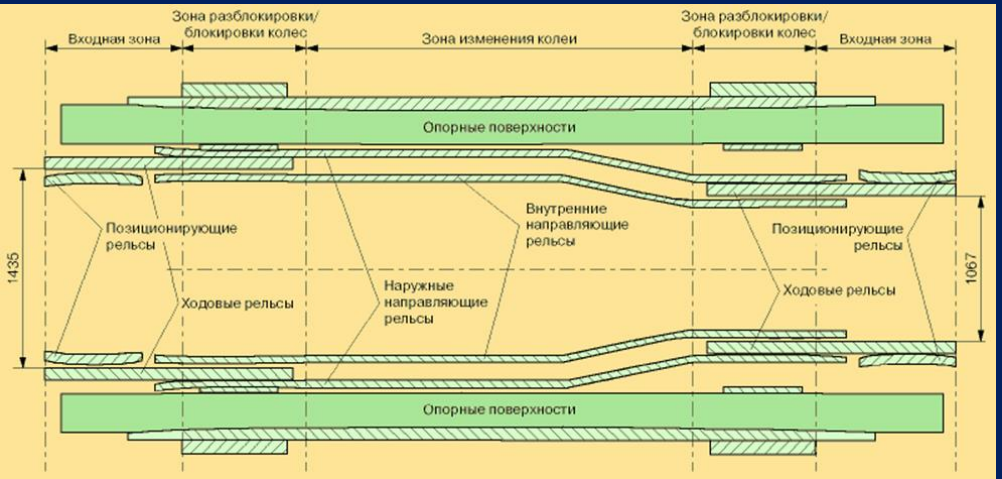
- broad gauge: 11 919 km with width 1.668 m. (electrified 6 950 km);
- standard gauge: 1 099 km with width 1.435 m. (electrified 1 054 km);
- narrow gauge: 1 928 km with width 1.000 m. (electrified 815 km);
- 28 km with width 0.914 м. (electrified 28 км)

Replacement bogies under interchange of the wagon from gauge 1520 mm to gauge 1435 mm

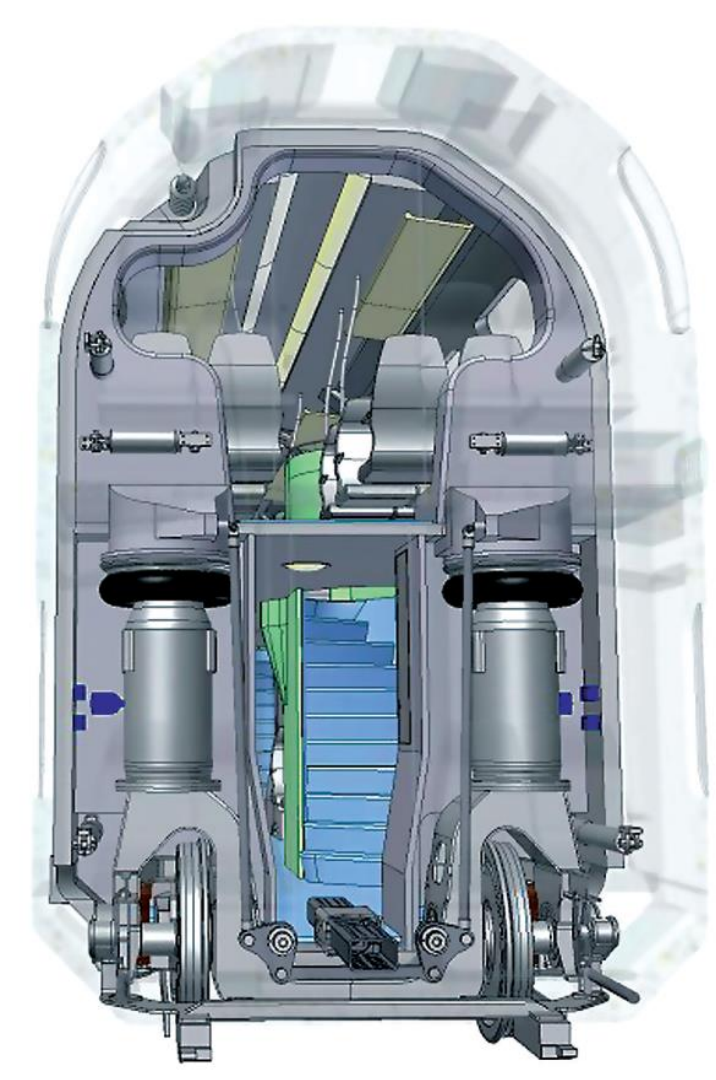
System of automated transition of wagons from one track to another

- System TALGO RD, system CAF Brava, combined track device TCRS-1 (Spain),
- System DB AG/Rafil (Germany),
- System БТ (Bulgaria),
- System SUW2000 (Poland),
- System ТГ-14 (USSR),
- Train GCT and track device GCE (Japan),
- Project EUNU (Ukraine)

Electric train GCT for movement on routes 1435 and 1067 mm



Scheme of stationary transition device GCE



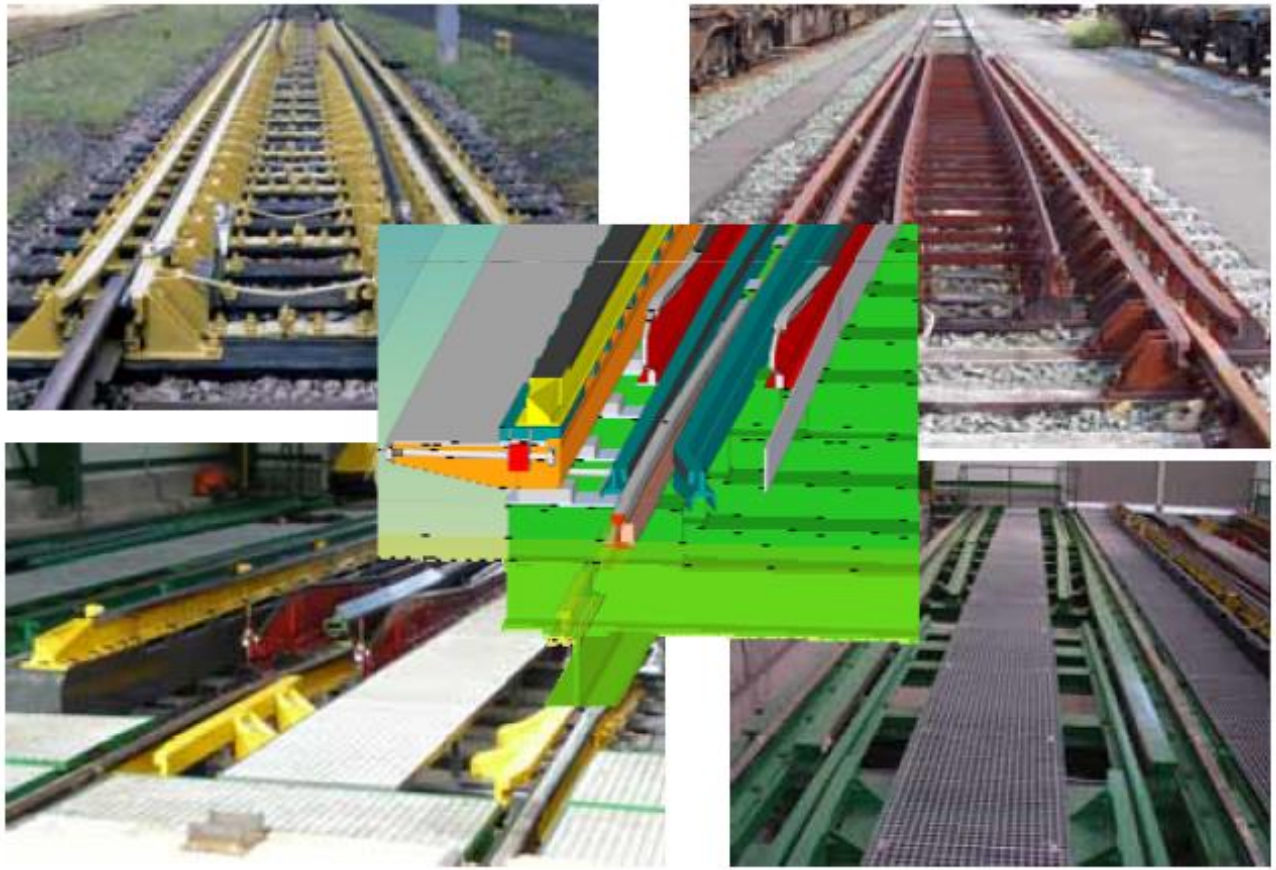
System TALGO

The transition part of the railways - system TCRS1

System SUW-2000

Equipped section of track for the transition from 1435 mm to 1520 mm gauge for system SUW-2000 Maćkowo (Lithuania).

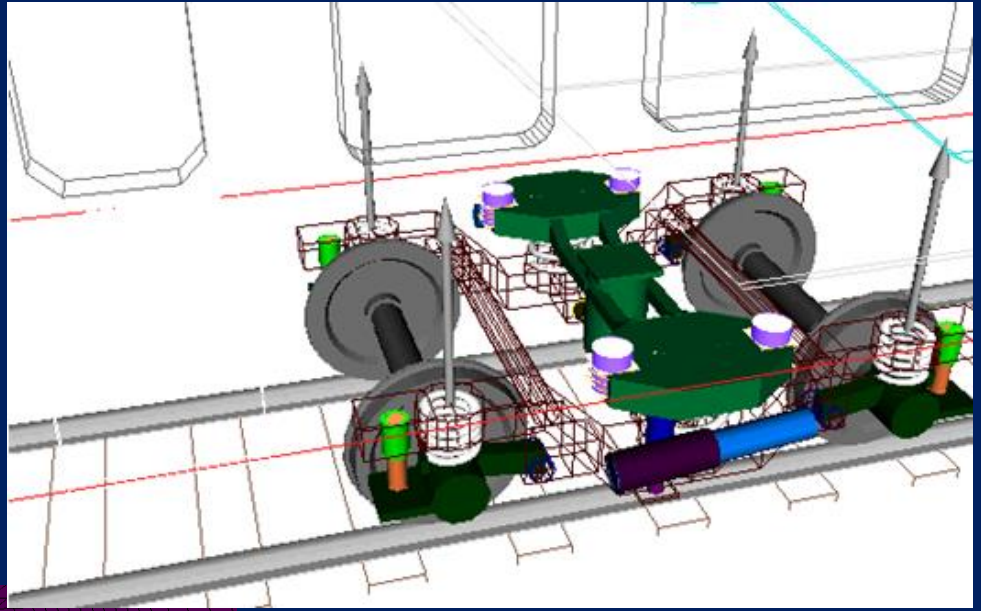
Due to the system SUW-2000 transition lasts only 15-20 minutes, while the usual rearrangement takes approximately 2.5 hours

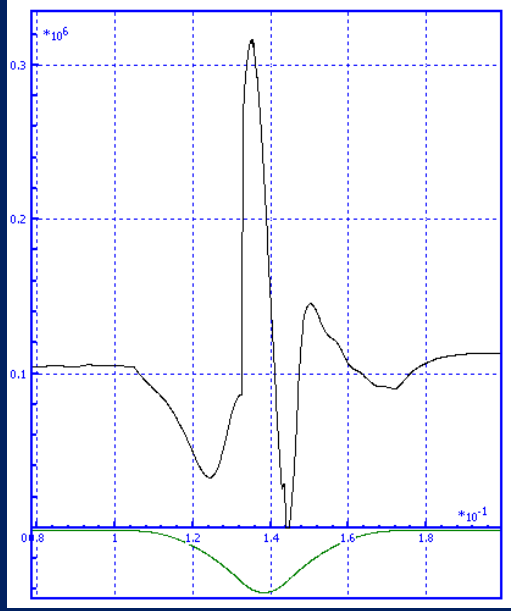


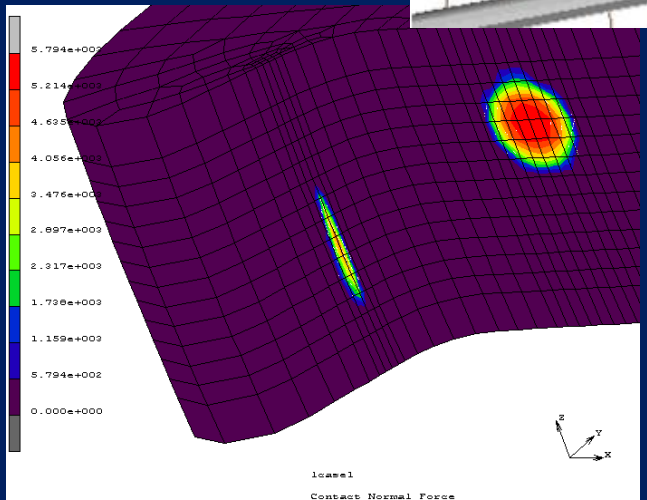
System TCRS4

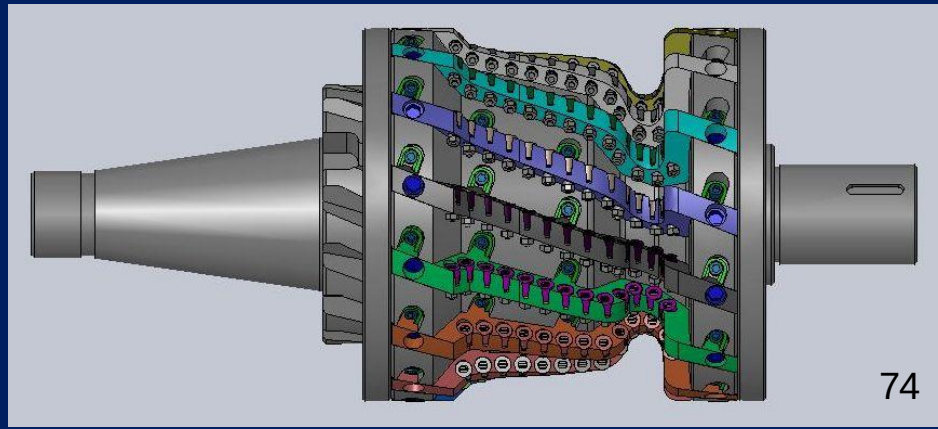
Advanced development TCRS4 will allow to pass the train with sliding wheelsets of different designs

The problem of wheel profile selecting for sliding wheelsets









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Thank you for attention!
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