

ONGOING GLOBAL DEVELOPMENT TRENDS OF SEAPORTS: CHALLENGES FACED BY SMALL PORTS

Deda Djelovic

Port of Bar, Montenegro

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INTRODUCTION

Ports are ... multimodal transport and logistics centres, focal points of leisure and tourism, and, increasingly also, hubs for sustainable industry and clean energy...

Ports must be agile and flexible to be able to quickly respond to rapidly changing economic, geopolitical and environmental realities (ESPO, 2021)



GLOBAL TRENDS (1)

Sustainable and Smart Mobility Strategy – putting European transport on track for the future (European Commission, 2020): ... the most serious challenge facing the transport sector is to significantly reduce its emissions and become more sustainable ...

The European Green Deal (European Commission, 2019): ... calls for a 90% reduction in greenhouse gas emissions from transport ... by 2050, while also working towards a zero-pollution ambition.



GLOBAL TRENDS (2)

The 2030 Agenda for Sustainable Development (<https://sdgs.un.org/goals>) ... adopted by all United Nations Member States in 2015, with 17 Sustainable Development Goals (SDGs) ..., they recognize that development must balance social, economic and environmental sustainability.

National documents of strategic importance:
National Strategy of Sustainable Development – 2030; Development Strategy of Transport System in Montenegro – 2019 – 2035; etc.



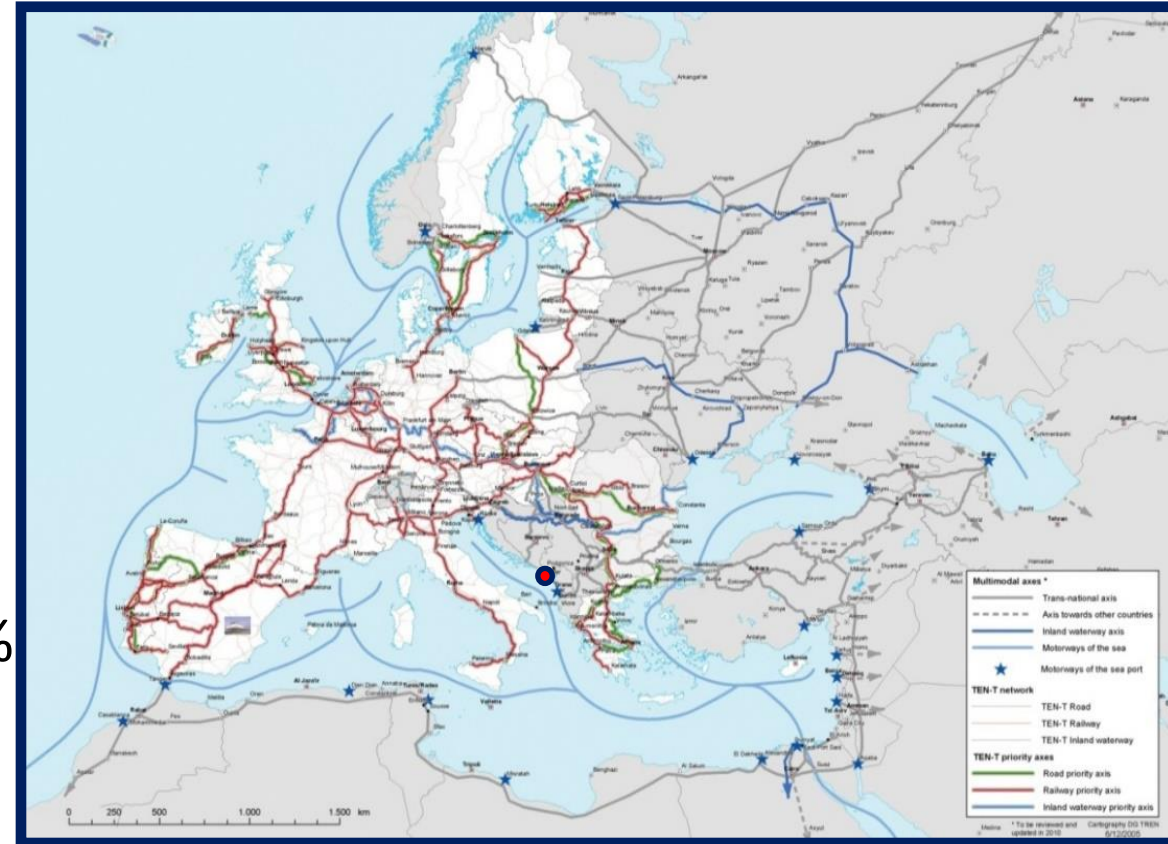
PORT OF BAR – BASIC DETAILS

... founded in the year 1906;

... situated on the entrance to the Adriatic sea, on distance of 976 nm to Suez and 1190 nm to Gibraltar;

... managed according to land lord port management model defined in the Law on Ports

...terminal operators: **Port of Bar JSC** (78.55% shares are owned by state of Montenegro);
Port of Adria JSC (62.05% shares are owned by the Global Ports Holding - Turkey)



TOC EUROPE CHALLENGES (1)

Trends (generators of challenges): ... to become „smart and green“ ...

When thinking of sustainability in ports, most of the focus tends to be on air pollution; however, there are many other areas of importance for green ports such as noise, dust, waste, water pollution, ...
(Bergqvist et.al., 2019)



CHALLENGES (2)

Key question is: How to reach targets defined by the trends?

Small (and medium sized) ports do not often have sufficient resources to implement environmental effectiveness enhancing tools, even if they need them (Gerlitz, L, et.al., 2021; Brunilla et.al, 2023; etc.)



The next question is: How does it look like in the Port of Bar?

Case Study: Port of Bar JSC, ... optimizing sustainability – how to reach targets set for the year 2050 (in the next 25 years)?

- WORKFORCE,
- emissions to air (port machinery, ships, open storage areas, ...),
- water pollution (from ships, during operations, contaminated surface waters, ...), etc.

... WORKFORCE

- **54.63%** of current employees have less than 15 years of service;
- **19.26%** of current employees have less than 5 years of service;

The green transition will amplify demands for new skills at all levels, requiring a large-scale up-skilling and re-skilling of the workforce. (European Commission, 2023).

CHALLENGES (5)

... MARKET POSITION/THROUGHPUT STRUCTURE

Overall throughput in the period from 2010 to 2023: up to 2.390 million tons/year (2022) – seaborn transport

Top two cargo types in the throughput structure

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
C1	C2	C1	C1	C1	C1	C5	C5	C6	C5	C5	C7	C7	C7
C2	C1	C2	C3	C3	C4	C1	C1	C5	C1	C1	C1	C5	C5

Intensive variations of demands

C1	liquid	I	TANKS, pipelines, ...
C2	dry bulk	II	OPEN STORAGE, shore cranes, ...
C3	ro-ro	III	OPEN STORAGE-RO-RO, drivers, ...
C4	dry bulk	IV	OPEN STORAG-BULK, belt conveyors, ...
C5	dry bulk	II	OPEN STORAGE-BULK, shore cranes, ...
C6	dry bulk	V	SILO, pneumatic transport, ...
C7	dry bluk	VI	CLOSED STORAGE-BULK, internal transport, shore cranes, ...

... INVESTMENT CAPABILITY

Average value of investments per ton of cargo (seaborn transport), per year, in the period 2010 – 2023:

- around 1.10 EUR/t,
- variations per years, priority: port machinery, ...

... BERTHING CAPACITY

- Number of berths: 11 (3 liquid cargo ships, 4 bulk cargo ships, 2 general cargo/ro-ro ships, 2 ro-pax and passenger ships);

Number of ships that can be simultaneously supplied in the ports where On-shore Power Supply connections are available: 3 general cargo, 2 ro-ro, ... (EALING project, 2022).

... QUANTIFICATION

As per results of initial analyses on costs for „greening“ the existing port machinery fleet (just one component in the path towards sustainable port), and respecting current relation between the prices of diesel powered and electric port machinery,

in average, estimated investment costs per year through the next 25 year period (up to the year 2050) are over the average annual level of total investments costs for the period from 2010 to 2023.

CONCLUSION

... Huge efforts are unavoidable in order to reach defined targets ...

THANK YOU VERY MUCH!