Integrated and Sustainable Transport in Efficient Network - ISTEN

D.T2.2.8 – ISTEN Local action plans for Bar area

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Local Action Plan for Bar area

1 INTRODUCTION

Montenegro is a sovereign state located in the western part of the Balkan peninsula, having a coast on the Adriatic Sea. The country shares borders with Croatia (West), Bosnia & Herzegovina (Northwest), Serbia (Northeast), Kosovo (East), Albania (East-Southeast) and Italy from which it is separated by the Adriatic Sea (Southwest). According to the 2011 Census, Montenegro has a total population of 620.029, of whom about a third live in the capital city, Podgorica. This is 1,3% more than in 2003, in which the previous census was conducted. Of the total population in 2011, the smallest number of population lives in the Coastal Region, i.e. 148.683 (24,0%).

Position of Montenegro (source: Wikipedia)

The Gross Domestic Product (GDP) in Montenegro was worth 5.45 billion US dollars in 2018. The GDP value of Montenegro represents 0.01 percent of the world economy. GDP in Montenegro averaged 3.43 USD Billion from 2000 until 2018, reaching an all time high of 5.45 USD Billion in 2018 and a record low of 0.98 USD Billion in 2000.

City of Bar is located on the coastal western border of Montenegro on the shore of the Adriatic Sea. It is approximately 53 km away from Podgorica, the capital of Montenegro. The city is located at 42 ° 6 'latitude and 19 ° 6' longitude, at an elevation of 4 meters.

Bar is a coastal town in Montenegro and according to Census of Population, Households and Dwellings in Montenegro 2011, Bar has 42.048 inhabitants which makes 6,78% of Montenegro's population. The Census ranks Bar as the 4th municipality in number of inhabitants behind Podgorica (capital city - 185 937 (29,99%)), Nikšić (72.443 (11,68%)) and Bijelo Polje (46.051(7,43%))[1].

The distance from the border crossing with Serbia is currently 243 km, but with the construction of the highway Bar-Boljare that distance will be reduced to 167,2 km. Distance from city of Bar to Albania is 35km, to Croatia 100km, to Bosnia and Herzegovina 150km.

The economy of city of Bar relies upon Port of Bar to a significant extent. The port area is located to the west of the Town of Bar. Port of Bar, as practically the only cargo port in Montenegro, which performs almost all maritime traffic, has capacities and development potentials (length of the operational coast, depth of the waters, connection with the railway and a large area for expansion), which give it regional status. In addition, the Port of Bar, as a modern port, offers great opportunities for further development of combined transport and interconnection of all regions.

[1] Source: http://www.monstat.org , Statistical Office of Montenegro - MONSTAT

2 INFRASTRUCTURE CLUSTER

2.1 Introduction and goals

The Port of Bar is the largest and main Montenegrin port. The Town of Bar represents Montenegro's connection with the world because it is a border municipality which is connected to Italy by the Adriatic Sea. The company Port of Bar is a holding company, in which the state of Montenegro holds 54% of the shares in stocks.

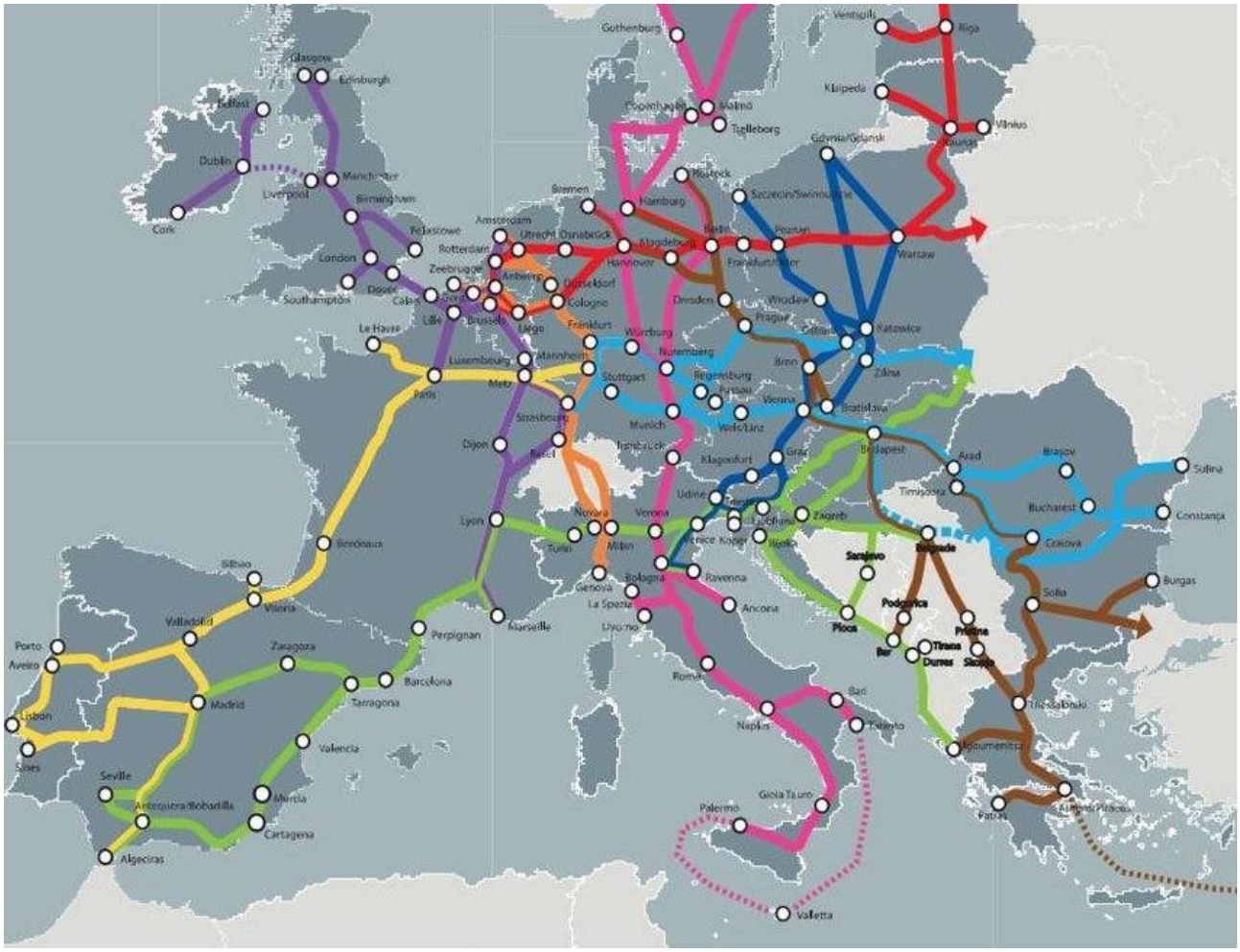
Integrated with the Belgrade - Bar railway and road traffic network, the Port represents a very important link in the chain of intermodal transport. The Port is a junction of the trunk road M–24 Herceg–Novi–Bar-Ulcinj and the road Bar–Podgorica-Belgrade. The Bar is a point of departure of the railway line Bar - Belgrade. Bar has great potentials as a regional importance port. The quality of the port infrastructural links with its hinterland has a strong influence on the current port capacity utilization rate. Current infrastructure in Port of Bar is for the big part in need of rehabilitation and reconstruction.

Port of Bar, as the logistic node, strives to integrated and multimodal connections. The mentioned could be achieved through connecting the port with its hinterland. In the case of Port of Bar, projects important for development of the port and the region in general are projects whose realization depends on external influential factors of different nature and their intensity. However, the most promising ones from the field of transport and logistic are: project of building Motorway Bar – Belgrade; project of building Adriatic-Ionian Motorway in Montenegro; project of reconstruction and modernization of the railway Bar – Belgrade; project of building inter-modal terminals at the railway stations in Bar, Podgorica and Bijelo Polje; and project of development short sea shipping links with Adriatic ports. As it could be seen, projects of primary importance are related to revitalization of the railways and building the first motorway in Montenegro. These projects have great importance for the further development and expansion of the port and economic growth of the region, as well as the Republic of Montenegro.

Future plans related to Port of Bar have already been defined with the aim of connecting it with the main hubs in hinterland. Being a modern port, the port offers great range of opportunities to continue

with development of combined transport, in that way creating connections among regions, and bearing in mind that crucial road-railway infrastructure is located in port's hinterland.

In addition, future plans are related to the opportunity to promote the railway connection Bar–Belgrade by using combined maritime-railway transport mode so as to provide full access to the South Central Europe hinterland and obtain competitive advantages which could be used as an alternative to the already established alternatives - TEN-T corridors through Croatia, Bosnia or Albania.



Indicative extension to the Core Network Corridors, source: www.researchgate.net

Port of Bar, being the only multimodal hub which connects three transport modes – maritime, rail and road transport – holds a crucial place in Montenegrin transport system, has experience lasting over one century in maritime and trade industry and therefore in the economy of the Republic of Montenegro. The above mentioned fact of multimodality is supported by the fact that it is a final

destination of the Belgrade - Bar railway, which adds value of the intermodal transport in the region. After extension of the basic regional transport TEN-T network to the area of Western Balkans, Port of Bar was included as a port which complies with the criteria referring to ports which are important to their regions.

2.2 Stakeholders involved

Disparity and balance of stakeholders is beneficial to the planning process of creating a sustainable action plan for Bar area. Lack of a systematic approach to integrate input of a wide range of stakeholders in infrastructure investments might result in the neglect of dynamics and can affect the accuracy of project schedules and estimates which is why it is of the outmost importance for Port of Bar to involve all the key actors in creating a durable plan for development.

Organisation level	Name	Type of engagement
National level	Ministry of Transport and Maritime Affairs	Consult, collaborate, inform
	Maritime Safety Department of Montenegro	Collaborate, inform
	European Integration Office	Collaborate, inform
Local level	Municipality of Bar	Collaborate, inform, consult
	Interlog d.o.o.	Collaborate, inform
	Logicar d.o.o	Collaborate, inform

Ministry of Transport and Maritime Affairs

Main national stakeholder for Port of Bar. Ministry is responsible for the transport sector and is in charge for development, management, and coordination of the various modes of transport. It is organized in various number of Directorates: the Directorate for Railways, the Directorate for Road Traffic, the Directorate for State Roads, the Directorate for Air Traffic, the Directorate for International Cooperation and EU Funds and the ones related to Port of Bar – the Directorate for Maritime economy and the Directorate for Maritime Traffic and Inland Navigation.

Maritime Safety Department of Montenegro

The basic activity of the Maritime Safety Department as a part of the Ministry of Transport and Maritime Affairs is to ensure conditions for, and actual performance of, tasks stemming from the international obligations that the State has agreed to by signing conventions, agreements and protocols, related to the safety and security of navigation in the area of responsibility of the Contracting Government. Maritime Safety Department was recently merged with Montenegrin Port Authority and according to the Law on Ports' that body is responsible for: care for the construction, reconstruction, maintenance, management, protection and improvement of the port; supervision over the use of the port, provision of port services and performance of other activities in the port; control over the construction, reconstruction, maintenance and protection of port infrastructure and suprastructures; providing conditions for performing maritime traffic and port services in the port and at the anchorage of the port; application of domestic regulations, international agreements and standards related to ports; preparation of port development plans adopted by the Government; ensuring the operation of the port in accordance with market principles; preparation of the concession act, participation in the procedure for awarding the concession and concluding the contract on the concession and other regulations related to concession; other activities in accordance with the law.

European Integration Office

European Integration Office is a body within the Office of Prime Minister of Montenegro. It is a main national body for coordination and development of EU integration activities as well as IPA funds coordinators.

Municipality of Bar

Municipality of Bar is responsible for monitoring and improvement of the local government system and represents a direct form of local government. Municipality of Bar is involved in the process of issuing permits for the building of infrastructure in the port.

Interlog Bar and Logicar

Logistics operators and service providers.

2.3 Key Actions

➢ **Key Action n. 1**

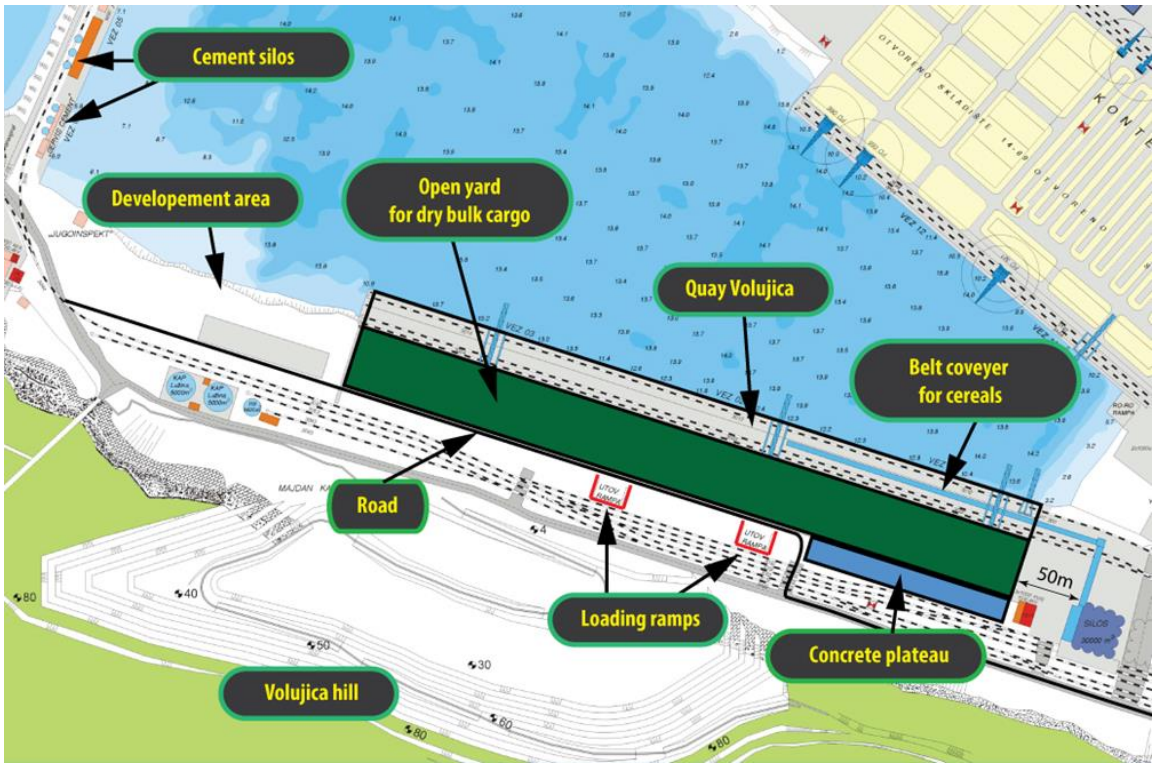
<u>Reconstruction of the construction of the quay Volujica (554m in length) and construction of the extension of the quay Volujica (166m in length)</u>

❖ **Reconstruction of the construction of the quay Volujica (554m in length)**

Terminal Volujica is located in the southern part of the Port. This cargo terminal is equipped with:

- three gantry cranes with 12 t capacity;
- mobile Harbour Crane Liebherr LHM 550 with 144t capacity;
- grain loading tower (hourly capacity 300 t/h).

Area of the operational quay of the terminal is 554 m with water depth of 14 m. It is specialized for acceptance and dispatch of all types of ores, concentrates, general cargo as well as other types of cargoes. The area of the open storage space on concrete base extends to 27 000 m^2. This terminal also contains grain silo with capacity of 30 000t which is designed for reception and dispatch of grain to and from silo.



Quay Volujica in Port of Bar

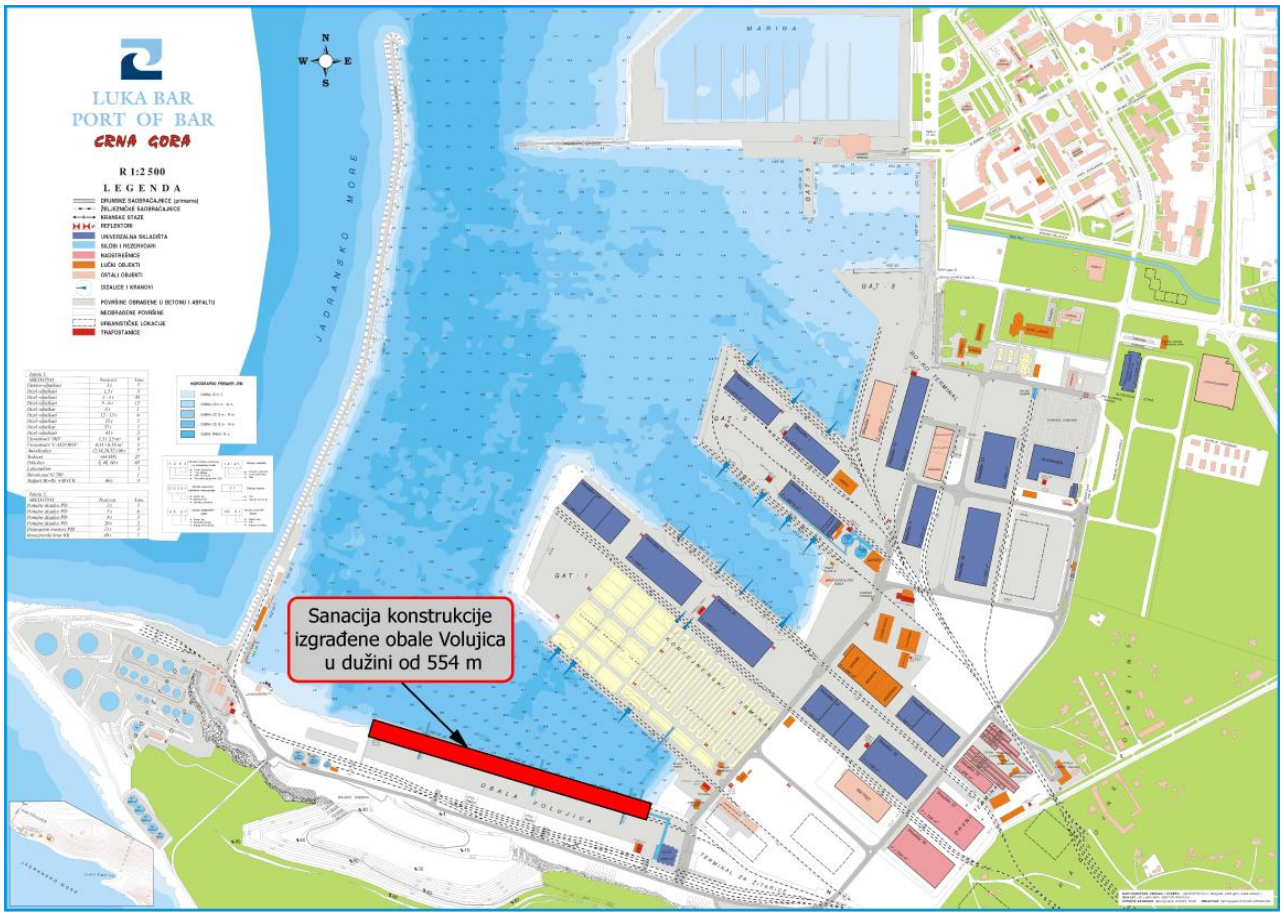
The internal necessity of Port of Bar is to ensure capacity and quality infrastructure to support the transport infrastructure projects. The Volujica quay is the largest quay in the Port of Bar. Due to aggressive environment and low level of the maintenance, corrosion of the construction appeared. Faculty of Civil Engineering from Podgorica (1999) and the Civil Engineering Institute from North Macedonia (2012) stated that the condition of a part of quay was critical and an urgent rehabilitation was proposed.

Construction damages on quay Volujica

Technical solutions for reconstruction (rehabilitation) are divided depending on the degree of damage, and in the Main Design several types of rehabilitation measures are recognized depending on the level of damages.

This key action is of the highest importance in port investments due to damage to the structure of the constructed part of the coast of Volujica. It will allow optimization of the allowed load of the construction of the operational shore per unit area, it will enable adequate use of existing and introduction of new equipment of higher productivity optimal.

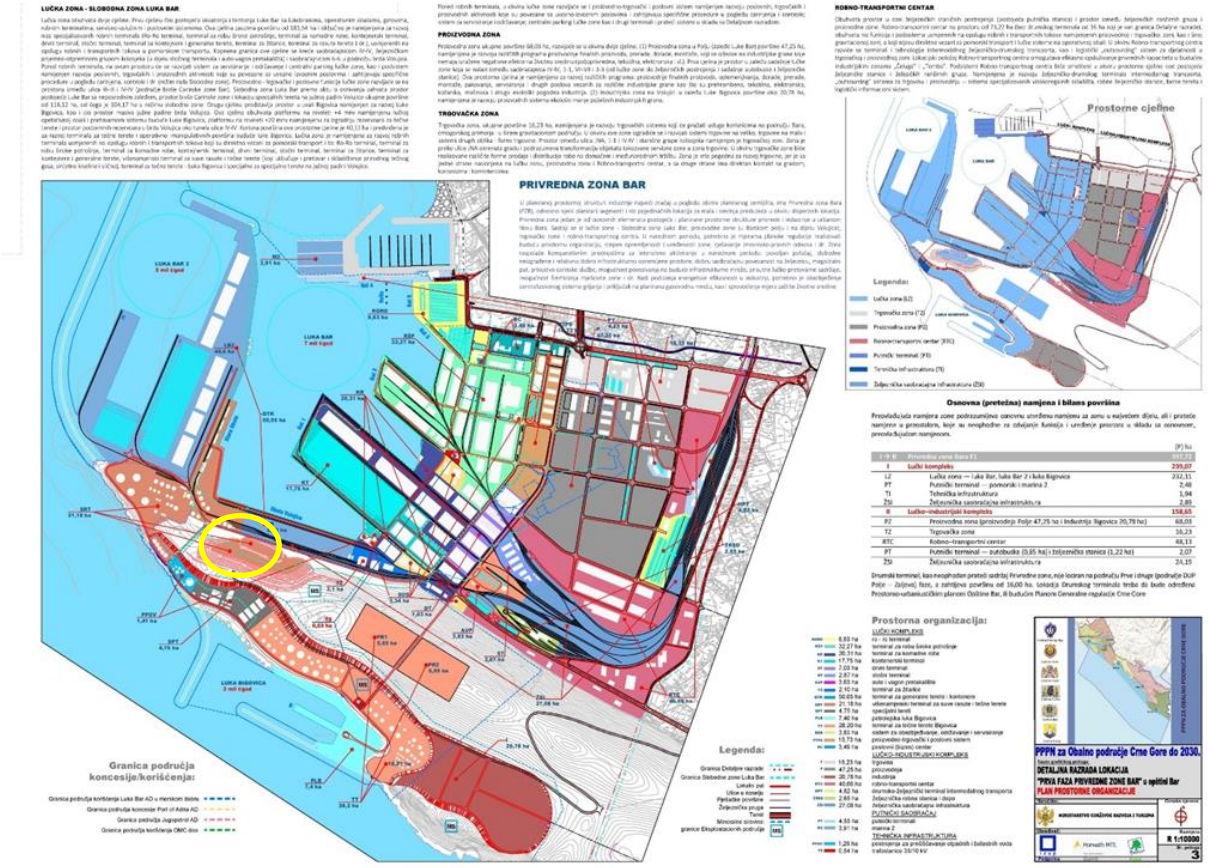
Main design for this key action is prepared through NEWBRAIN (ADRION programme) project and it is formed in a way to be an introduction to infrastructure investment in quay reconstruction. With this infrastructural investment port will eliminate significant existing risks and will enable the fulfilment of conditions for maintaining the level of the existing capacity unchanged.



Position of the quay Volujica in the port

❖ **Extension of the quay Volujica (166m in length)**

In all development plans of Montenegro, the Port of Bar is considered as one of the most important potentials of development. In the development plans of the Port, according to the spatial-planning documentation (Spatial plan for special purposes for coastal area of Montenegro), one of the most important infrastructure projects is the extension of the quay Volujica by 166m and the construction of an open storage in its hinterland, with related activities on the necessary deepening of a part of the aquatorium with the extension of the operational quay.



Spatial plan for special purposes for coastal area of Montenegro, insert for the port area

After the mentioned repairs and reconstruction of the damages in Key action no.1, the extension of the quay is planned in order to improve overall performance and enforce higher level of productivity.

This concrete action includes:

- carrying out work on extension of the operational quay Volujica for 166m (width 30m);
- design and installation of the system for cathode protection for this part of the construction of operational quay;
- design and construction of necessary infrastructure (electric power, water and sewerage, railway tracks) for a new part of the operational quay;

This key action will be on the basis of the existing port documentation in consultation with responsible port representatives. After putting all these capacities into operation, the potential transshipment of cargo on the coast of Volujica is expected to increase up to 30% percent.

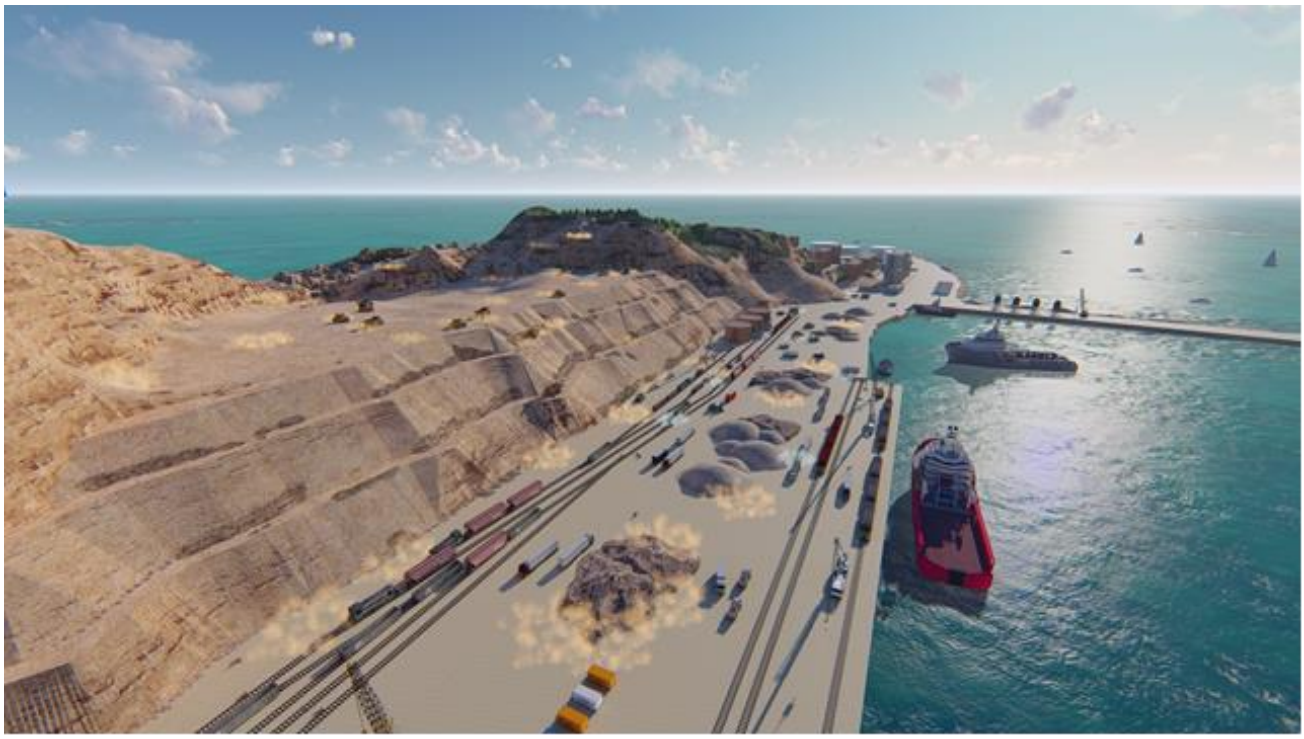


Illustration of the quay of Volujica extension

Time frame for realization of the project:

Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P1												

Estimation of costs: 10.000.000€

Currently, tender for the reconstruction is in the final phase and works will start probably this year and reconstruction will be finished in 2023 (planning date) but construction of the extension of the quay can be prolonged by 2030 due to funding problems.

- **Key Action n. 2**

Extension of the quay at Passenger terminal in Port of Bar

The Passenger terminal at the Port of Bar is located in the northern part of the port. Although officially classified as a passenger terminal, it is, in fact, **a ferry terminal or Ro-Pax terminal** and is equipped for accommodation of small/medium ships. The depth is in the range from 4m to 5,9m and maximum berth length is 107,5m. Extension of the quay at the Passenger Terminal shall improve accessibility

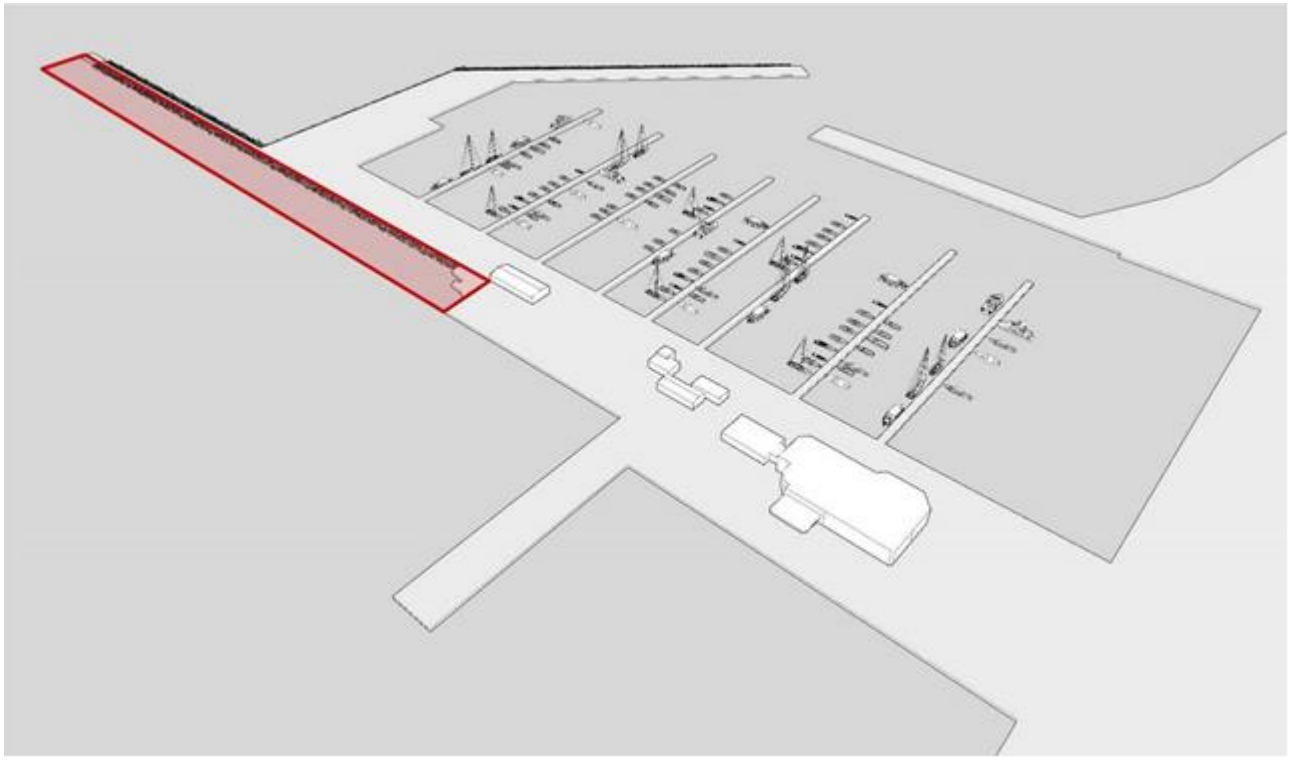
of the port with focus on medium/large Ro-Pax ships (with bigger draft) and cruise ships in Bar. Investments referred to extension of the existing quay and dredging terminal water area in order to enable receiving bigger ships were defined in the development plan of Port of Bar.

Passenger terminal (Port of Bar)

The Passenger terminal is equipped with a four lane road (2 entry and 2 exit lanes) connecting it to the major roads through the town of Bar and further on. There are no railway connections from the passenger terminals nor do they seem to be necessary for the present or planned level and scope of operations.

In the present situation, Ro-Pax cargoes (trucks and trailers) are mostly individual cargoes. In spite of its 50-year long tradition, the Bar-Bari ferry does not seem to have an established, long term relationship with one or more large clients that rely on this Ro-Pax service for their logistic supply chain. The shipping companies does not attract this type of clients. Shipping and forwarding of Ro-

Pax cargoes is dealt with by a number of small agents that do not have the power to attract and bind substantial volumes.[2]



Extension of the existing quay at Passenger (ferry) terminal of the port

Altogether, there seems to be a need for an inter-modal platform to join forces of all parties involved, actively promote the SSS and inter-modal transport possibilities, consolidate volumes and more substantially shift road transport to sea routes. If such a joint effort, to realize a lasting shift towards seaborne transport, would be successful, the effect on volumes through the passenger terminal could be much bigger than the influence of macro-economic factors. One of the main business objectives of Port of Bar is to optimize the utilization rate of the Passenger terminal and also to develop new capacities. In the case of growing Ro-Pax transport in the future, more lines may start calling the terminal with larger ships and investment in new quay or deepening of existing berths will be priority in order to enable safe berthing of bigger ships.

[2] Study of development of the Ro-Ro and Passenger terminal in the Port of Bar, SPIN CONSULT & PHAROS PORT CONSULTANCY BV, 2010

This project includes extension of Passenger terminal i.e. of the operative quay 432 m in length and 30 m in width, as an extension of the existing berth 54, on the inner side of the secondary breakwater. This action is to improve accessibility of the port with focus on medium/large Ro-Pax ships (with deeper draft) and cruise/passenger ships in Bar. The extension of the coast of the passenger terminal is designed for a current sea depth of 7 to 12,4 m, which could accommodate ships up to 300 m in length.[3]

Time frame for realization of the project:

Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P2												

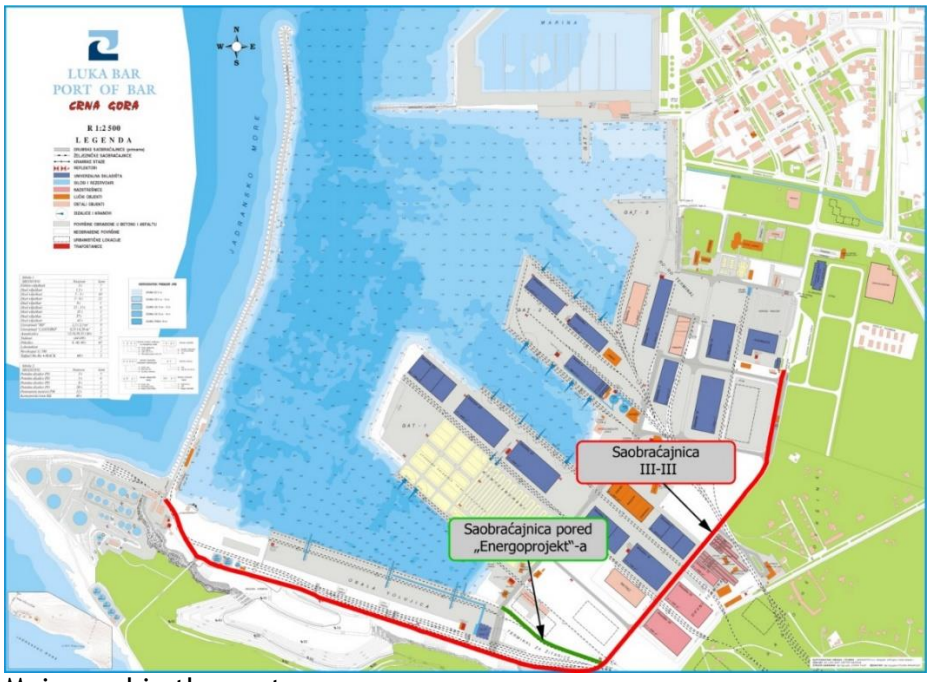
Estimation of costs: 12.500.000€

- **Key Action n. 3**

Rehabilitation of road infrastructure

The road infrastructure in port area is highly used and the maintenance level is not at a high level. The road infrastructure covers the entire port area and is used for all port operations. The damages on the road infrastructure vary from low to high and there is a need for entire rehabilitation especially for the busiest part of the port (shown in the image below).

[3] Inter-Connect project, Cases examination & evaluation - Intermodal passenger transport in Bar (sea-bus-rail), PhD Dražen Žgaljić 2020



Main road in the port

Time frame for realization of the project:

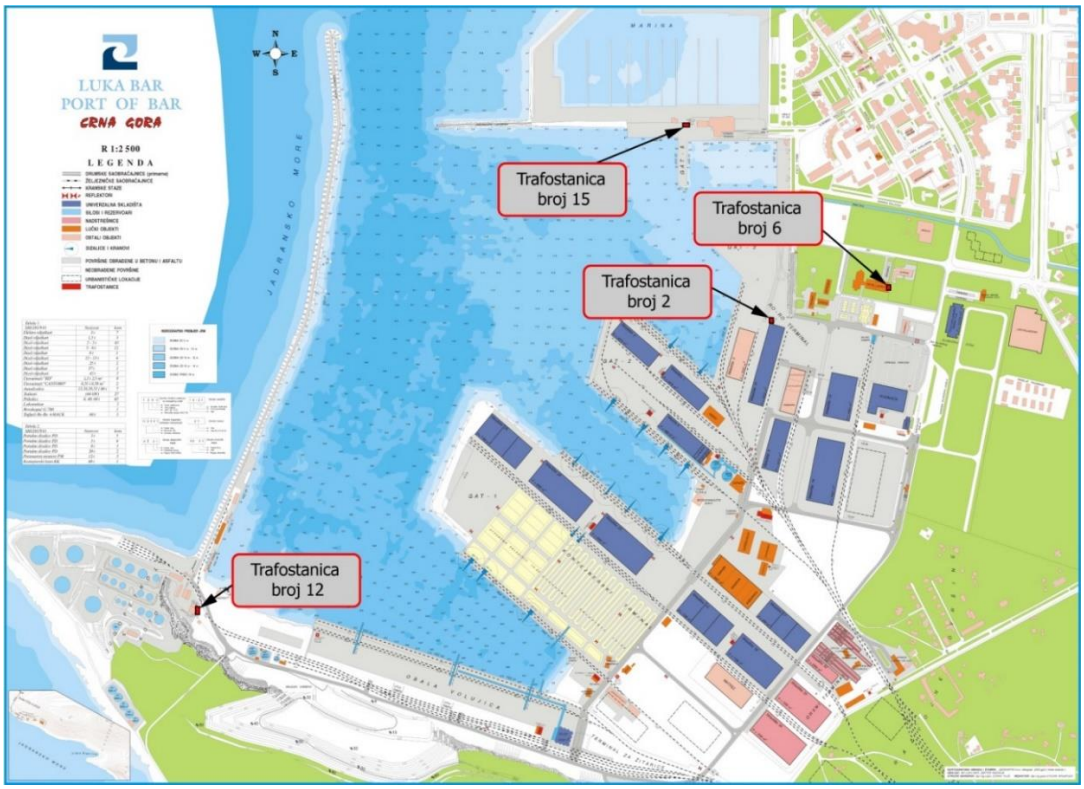
Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P3												

Estimation of costs: 150.000€

- **Key Action n. 4**

Reconstruction of energy network (10 / 0.4 kV substations in Port of Bar)

The electric power network of the Port of Bar is a separate part of the electric power system, which is connected to the electric power network of Bar and Montenegro with a double 35 kV cable line. The electricity network of the Port of Bar consists of lines: 35 kV, 10 kV and 0.4 kV.



Positions of substations

Substations TS 10 / 0.4 kV are located in the concession area of "Port of Bar" H.Co it is suitable for repairmen's.

Expected effects of realization of investment are: increase in degree of reliability of substations, minimization of interruption of processes in port area, implementation of the new technologies - smart energy monitoring. Energy sustainability has become a promising mean for ports to improve profitability. Significant energy saving potentials can be exploited by improving operations, adopting energy efficient technologies and using renewable energy sources. The implementation of an energy management system can help reveal energy efficiency improvements across the whole port area. Implementation of Energy management system is ranked as one of the priority measures to implement in recently developed Action plan for sustainable and low-carbon area developed through SUPAIR (ADRION) project.

Time frame for realization of the project:

Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P4												

Estimation of costs: 216.000€

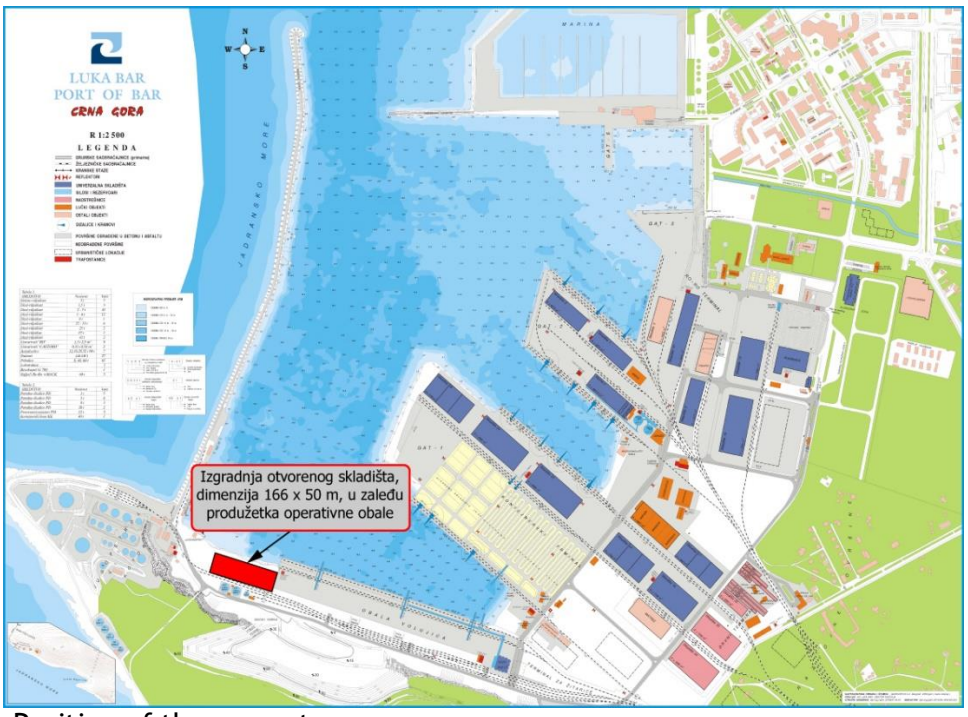
- **Key Action n. 5**

Construction of an open storage 166 x 50 m, in the hinterland of planned extension

Extending the operational quay for 166m will create space for the storage area. Investment in substructures and storage areas are planned due to expected increase in demand and due to desire of the company to attract more business and new cargo flows, while increasing technological possibilities.

Construction of an open storage 166 x 50 m in the hinterland of the planned extension (166m) at the Volujica quay will ease the movement of port machinery and equipment, storage of dry bulk cargoes, general cargo and containers in maximum height records in relation to the characteristics of the equipment for transshipment at the Terminal.

This open warehouse will also answer the need for stripping and stuffing of containers. Trucks and containers can be stripped and stuffed by means of modern techniques while meeting the logistics needs of the port.



Position of the open storage

Estimation of costs: 700.000€

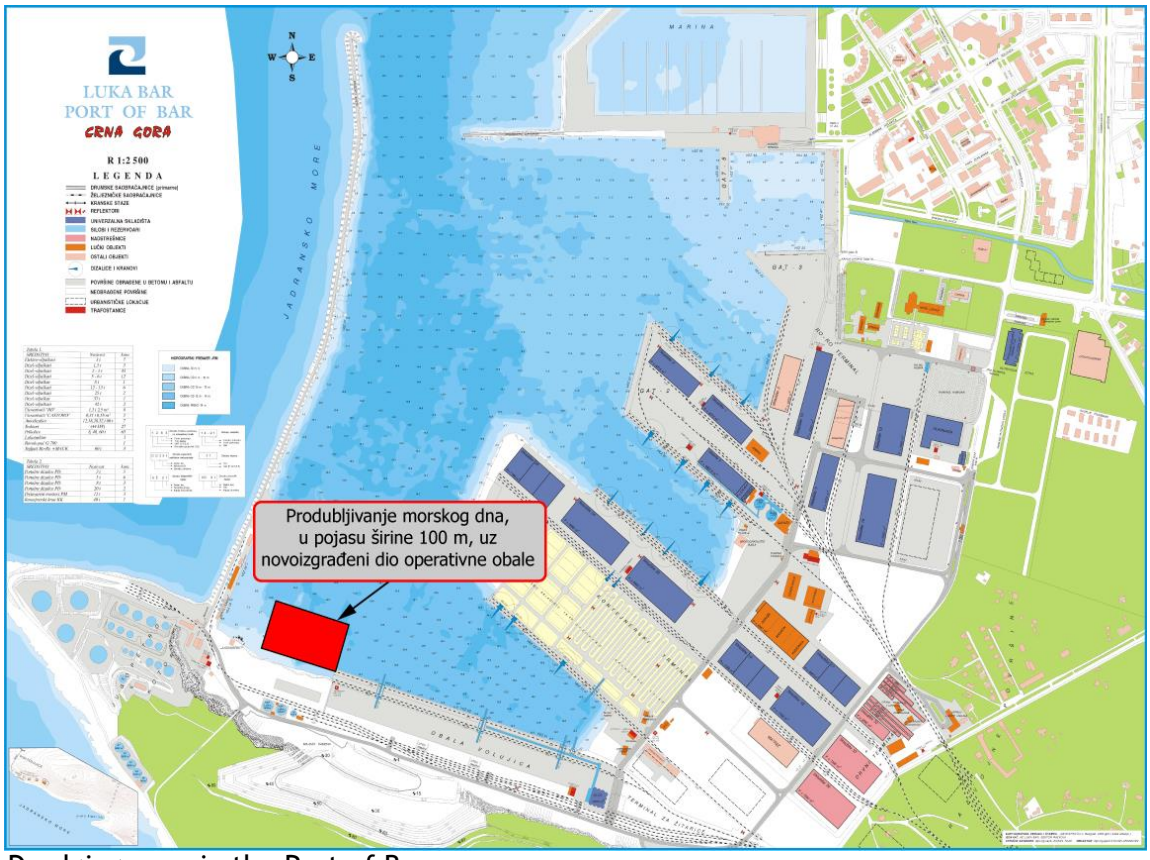
Time frame for realization of the project:

Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P5												

- **Key Action n. 6**

Dredging the depth to 14m at the extended part of the terminal

As it was mentioned previously, Volujica quay is the biggest quay in port of Bar and it is a place of the most port operations. Current depth on the quay Volujica is 14 m and with the investment in the extension there is a need for dredging the depth at the extended part also in order to receive bigger ships.



Dredging area in the Port of Bar

The action will fulfill the precondition that ships with the same characteristics (size) as on the already existing part of the coast (554 m long) can be moored on the newly built part of the operational coast. This increase of technological possibilities in Port of Bar, which could overcome the current limitations in the capacity of infrastructure for approx. 30%, will enable terminal Volujica to increase operations at a faster rate and better quality.

Time frame for realization of the project:

Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P6												

Estimation of costs: 1.000.000€

- **Key Action n. 7**

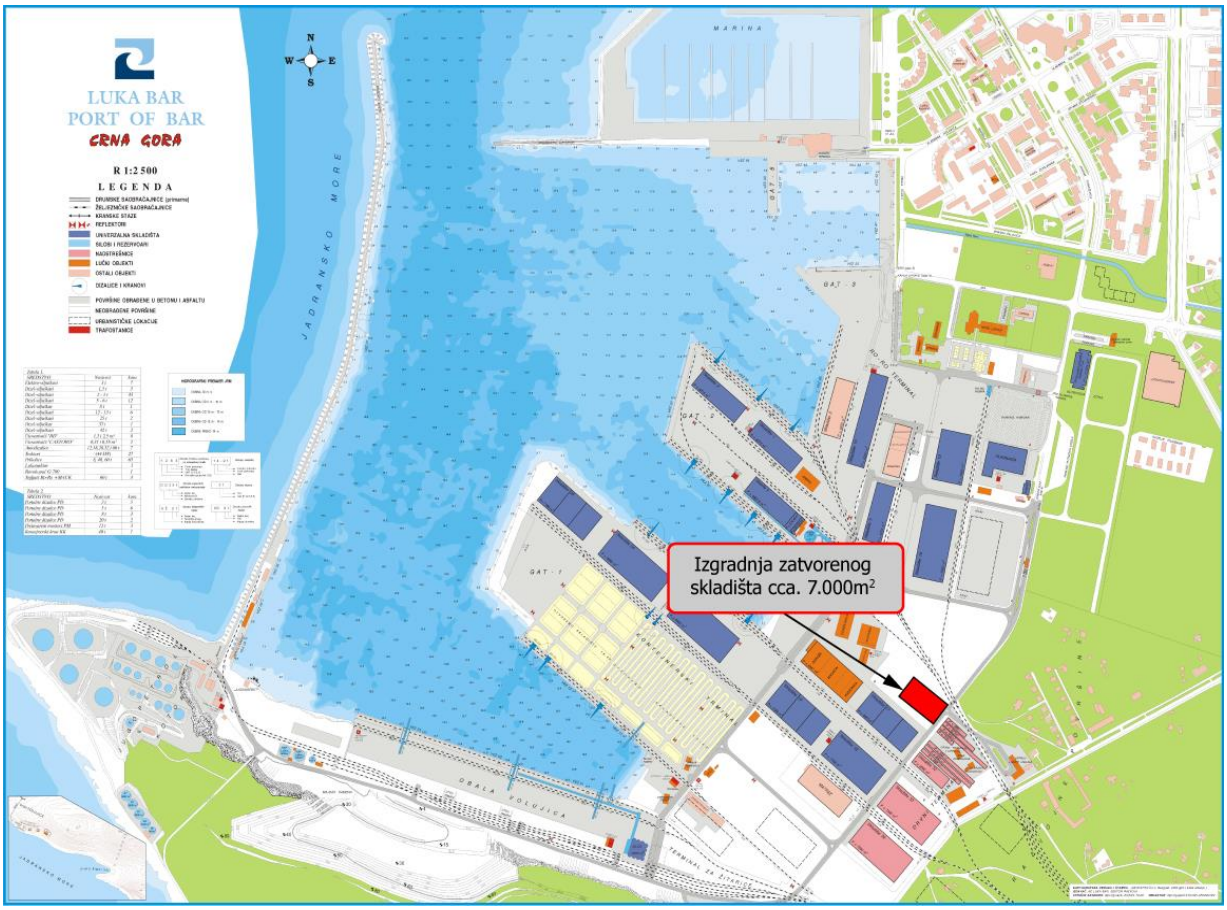
Construction of closed warehouse

There is anticipated increase in business volumes in the future, and general need for increase of storage capacity. For that reason, port decided to build closed warehouse of approx. 7.000m^2 in order to meet those requirements.

This closed warehouse will be located near other closed warehouses and in will be easily accessed by road.

The construction of the closed warehouse can improve port operations as it will result in expanded the range of service, increase in the volumes of cargo, increase in income, etc. This closed warehouse will also answer the need for stripping and stuffing of containers and storage of general cargoes.

Port of Bar as one of two operators in the entire port area currently does not have enough capacities for stripping and stuffing of containers in closed warehouses and with this investment this operation will be improved.



Position of the closed warehouse

Time frame for realization of the project:

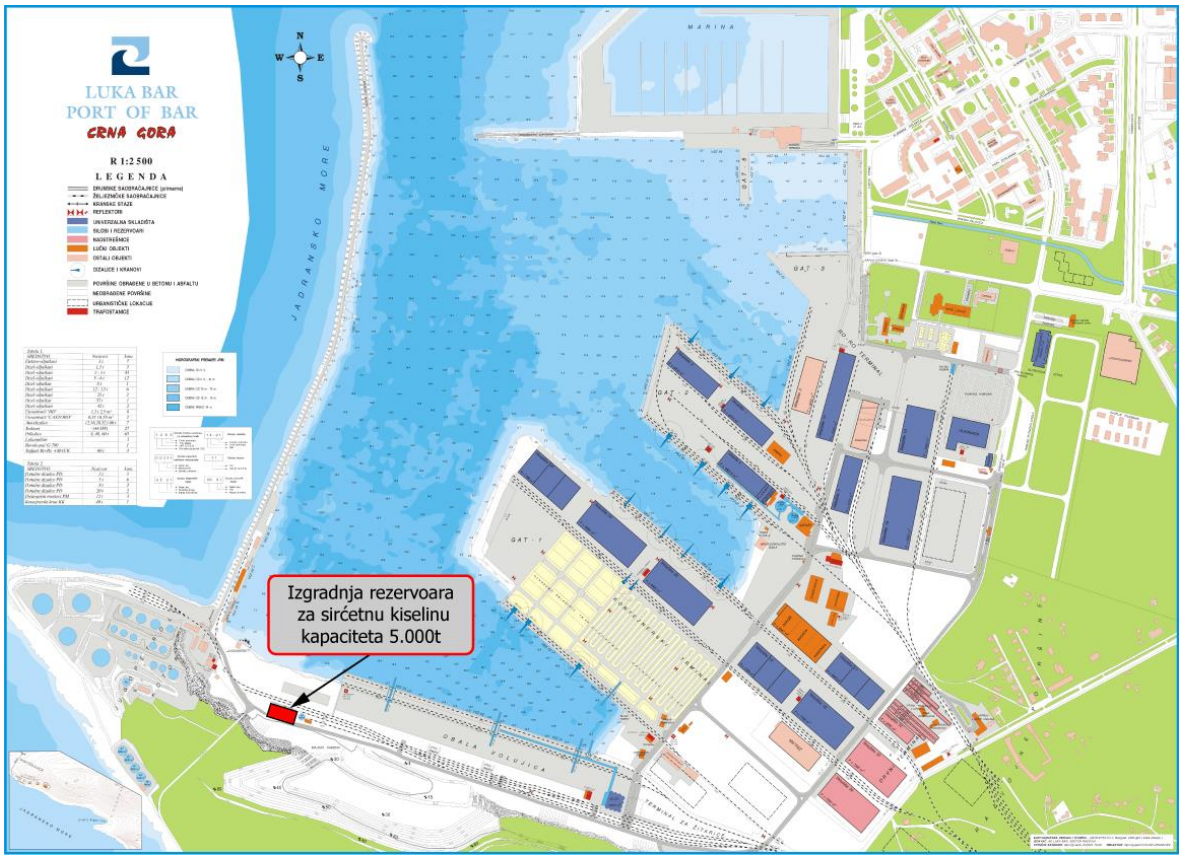
Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P7												

Estimation of costs: 2.500.000€

Key Action n. 8

Construction of acetic acid reservoir 5.000 t capacity

The existing acetic acid transfer station is located in the most southern part of the port and it is owned by "MSK" Kikinda (Serbia). It has a capacity of 600 t/h.



Position of the new acetic acid reservoir

Port has planes to build a new reservoir of capacity 5.000t and this investment will allow increase in the capacity for transshipment of acetic acid in Port of Bar while increasing the average quantities of cargo currently per ship amounting from 2.500 tons to 5.000 tons, in the variant of transshipment between the reservoir and ship.

Time frame for realization of the project:

Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P8												

Estimation of costs: 2.500.000€

- **Key Action n. 9**

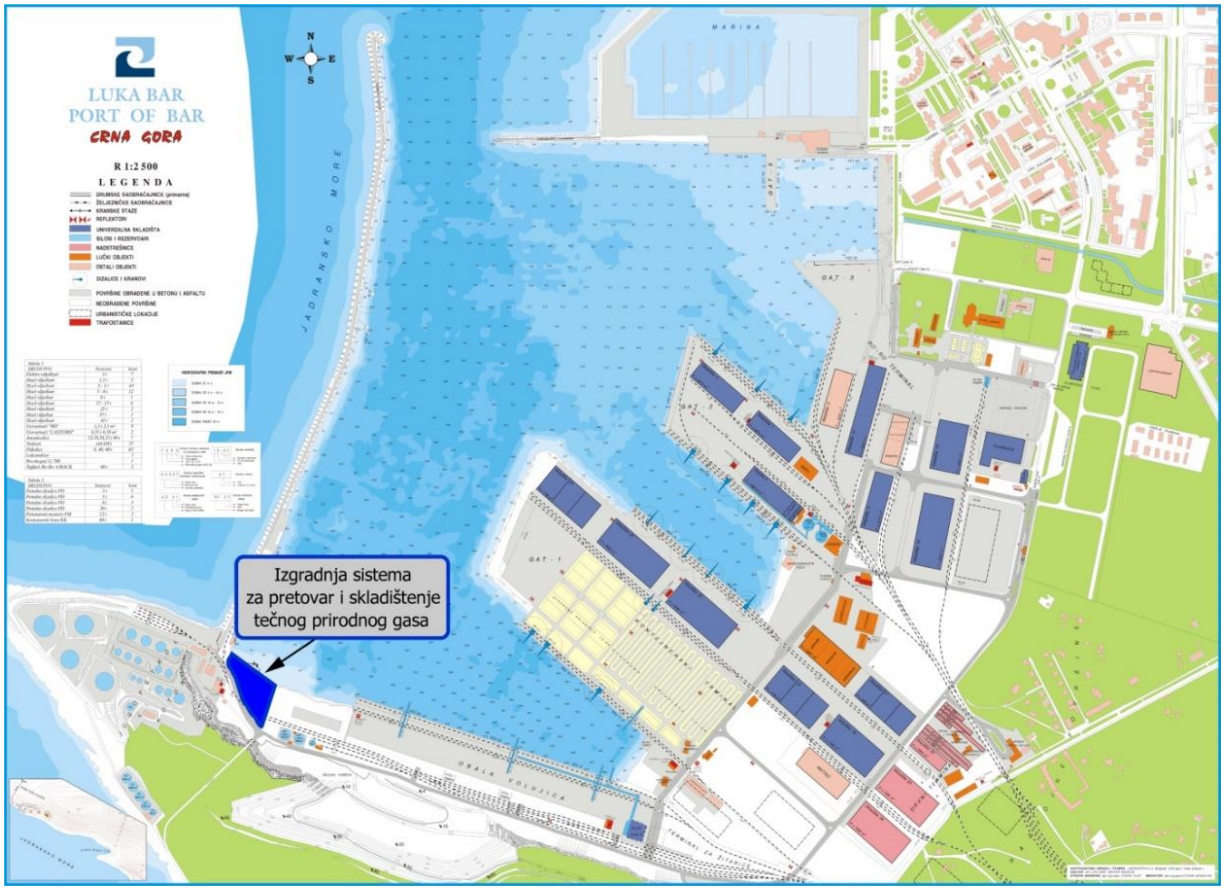
Construction of a system for handling and storage of LNG

The spatial planning documentation for Port of Bar envisages the development of an LNG terminal, covering an area of 2 hectares (shown in the image below).

Construction of the entire system is planned that includes:

- reservoirs
- pipelines
- devices for the transfer of LNG

The need for this investment emerged possibility for Port of Bar to handle imports of U.S. liquefied natural gas into Europe. The focus is on the possibilities for using containerized transport of liquefied natural gas (LNG) in the first phase of the project, which would bring Montenegro not only economic, but also environmental benefits.



Position of the future LNG reservoirs

At the moment, before the implementation of the project, necessary studies need to be done as well as the technical documentation.

Time frame for realization of the project:

Year	2019.	2020.	2021.	2022.	2023.	2024.	2025.	2026.	2027.	2028.	2029.	2030.
P9												

Estimation of costs: 15.000.000€

Implementation of the investment depends on the strategic partner/financing of the project.

2.4Aims

Key actions described in this action plan aim to satisfy the economic, spatial-planning, and transport interests of the logistic community, local government, and the wider interested public, as well as to stimulate the intermodality of transport.

Better infrastructure would create the preconditions for better transport connectivity, which is crucial for development. Investments in the infrastructure must also be followed by investments in different means of informing, application support, and supporting technologies.

These rehabilitation and reconstruction projects are already envisaged in the past but for the reasons of economic situation they remained unrealized. As for the entirely new infrastructural projects extension of the Volujica operational coast and construction of the LNG system, the need for these emerged from new possibilities and demand for increasing the extent of the work and need to meet the demand of today. Also, it will help Port of Bar gain better position in the region. Investment interest aim at enhancement of economic capacities.

Comparatively, ports of similar characteristics have decided to solve the problems of insufficient equipment by investing in port infrastructure, and in recent years Port of Bar has invested in the preparation of documentation for the implementation and completion of the investment in the form of an extension of the passenger coast.

It has been decided that Port of Bar, Bar Municipality, and the Ministry of Transport and Maritime Affairs will make significant efforts to create conditions that will support overall development, in line with development plans at national, regional, and local levels.

These key actions are also directly related to the improvement of intermodality and linking to the TEN-T corridors (indicative extension of the Main TENT-T network to the region of Western Balkans). Extension of the two Trans-European corridors, Mediterranean corridor and corridor Middle East – Eastern Mediterranean, directly includes Port of Bar as a part of the Main network on the territory of Montenegro (indicative extension of the Main (CORE) TEN-T network to the region of Western Balkans).

In addition, future infrastructure development actions are expected to provide opportunities for growth of Ro-Pax traffic through Port of Bar by improved accessibility.

2.5 Problems faced

The success of deployment of these key actions will highly depend on many factors such as macro-economic growth, business conditions, availability of funds, hinterland connections, port competition, etc. Present low quality of the Port of Bar's hinterland connections is one of the main reasons for the underutilization of the port's infrastructure and facilities. This means that improvements of rail and road connections to the hinterland will have high impact to the future development of the port.

The opportunities related to the hinterland poor connections are in a good path to be resolved by building a highway Bar-Boljare, which is currently under construction, and by reconstruction and modernization of the Bar-Belgrade railway. With these two projects it is more likely for Bar area to expand in socio-economic sense.

Works on the construction of Bar-Boljare Motorway started officially on 11 May 2015. The construction of the priority section Smokovac – Uvač – Mateševo will be finished next year (Chinese company CRBC, will complete the construction of this section which is 41 kilometers long, with 45 bridges and viaducts and 32 tunnels). It will represent a milestone in economic development and consideration of further development directions. This part is the most demanding section of the Motorway Bar – Boljare.

Other planned transport infrastructure projects, that are of the great importance for development of Bar area, are the following:

- Building Adriatic-Ionian Motorway in Montenegro;
- Building intermodal terminals at the railway stations in Bar, Podgorica and Bijelo Polje;
- Development of short sea shipping links with Adriatic ports; etc.

With that said, the main issues for implementing development actions are funding limitations and possible implementation setbacks considering economic power and availability of funding.

2.6 Timescale implementation

Canvas	Name of the action	Estimation of the Investment cost (€)	Timeframe
Infrastructure canvas	1. Reconstruction of the construction of the quay Volujica (554m in length) and construction of the extension of the quay Volujica (166m in length)	10 000 000	2020 - 2023
	2. Extension of the quay at Passenger terminal in Port of Bar	12 500 000	2020 – 2037*
	3. Rehabilitation of road infrastructure	150 000	2020 - 2021
	4. Reconstruction of energy network (10 / 0.4 kV substations in the Port of Bar)	216 000	2020 - 2021
	5. Construction of an open warehouse 166 x 50 m, in the hinterland of planned extension	700 000	2020 – 2030*
	6. Dredging the depth to 14m at the extended part of the terminal	1 000 000	2020 – 2030*
	7. Construction of closed warehouse	2 500 000	2020 - 2021
	8. Construction of acetic acid reservoir, 5.000 t capacity	2 500 000	2020 - 2022
	9. Construction of system for handling and storage of LNG	15 000 000	2020 – 2023**

*implementation of the investment approx. 36 months
** implementation of the investment depends on the strategic partner/financing of the project

2.7 Risk evaluation

As the demand for infrastructure investments continues to rise with trade growth and growing expectations for improved quality of life, smaller economies are struggling to address their infrastructure needs.

The investment climate is affected by many factors, including political stability, economic preparation and availability of funding. The existence of a stable and predictable environment in which both domestic and foreign investors can operate is vital for providing confidence to investors. Montenegro, as a small country aspiring to be EU member state, is making efforts to improve the enabling environment, with the support of EU development financial support.

Miscalculation of costs and implementation planning errors may occur due to the difficulty of performing works caused by geological, water, and other factors, which significantly complicates the works. It can cause delays in work as well as extra costs.

2.8 Funding sources

Potential funding source could be as it follows:

- Own funds
- Loans
- EU grants/subsidies
- PPP funding
- National subsidies/projects

2.9 Impact on bottlenecks

Main reason for implementation of these actions is to solve existing bottlenecks. These actions aim to improve intermodality, provide connection to TEN-T corridors, offer contribution to improvement of safety and security conditions, improve the characteristics, capacity of the infrastructure, impact on the annual traffic demand growth (traffic of freight and passengers), improve accessibility, contribute to overall economic growth (effects on economic environment of the country and countries

in the area), improve transit / transport facilities, mobility, access to new markets, jobs, education, definition of the project - adequate solution, and many more.

Infrastructure projects related to the quay Volujica would increase the capacities of "Port of Bar" H.Co. by 30 percent, in relation to the current handling capacity and storing capacity cargo. Also, proposed infrastructure projects related to the quay Volujica and storage capacities on the terminal enable the fulfilment of conditions for maintaining the level of the existing capacity unchanged – if the existing part of the operational quay (554m in length) is not rehabilitated, the existing capacity would be endangered.

As for the Passenger terminal, planned action will address connection bottlenecks that are currently on very low level. Planned projects are a main measure for improvement of quality of existing port development platform that provides implementation of its own know-how in Ro-Pax (ferry) destination development. This project offers great opportunity for development of strong partner relations with other ferry destinations on the Adriatic and Mediterranean sea.

Improving accessibility of the Port of Bar for medium/large Ro-Pax ships, favoring the new maritime connections in Adriatic region is one of the main priorities in the development plan of the Port of Bar. Currently, limitation at the Passenger terminal is the depth of the sea and length of current quay and new infrastructure for medium/large ships is needed.

Introduction of new technologies (LNG packs, investment in efficient equipment) and "greening" of the port operations are directly impacting CO_2 and other environmental challenges that port is facing. Also, energy sustainability has become a promising means for ports to improve profitability. Significant energy saving potentials can be exploited by improving operations, adopting energy efficient technologies and using renewable energy sources, all these actions can help reveal energy efficiency improvements across the whole port area. Port initiatives aiming to achieve an environmental-friendly port operation could also lead to an improved corporate image, which may be associated with direct and indirect benefits.

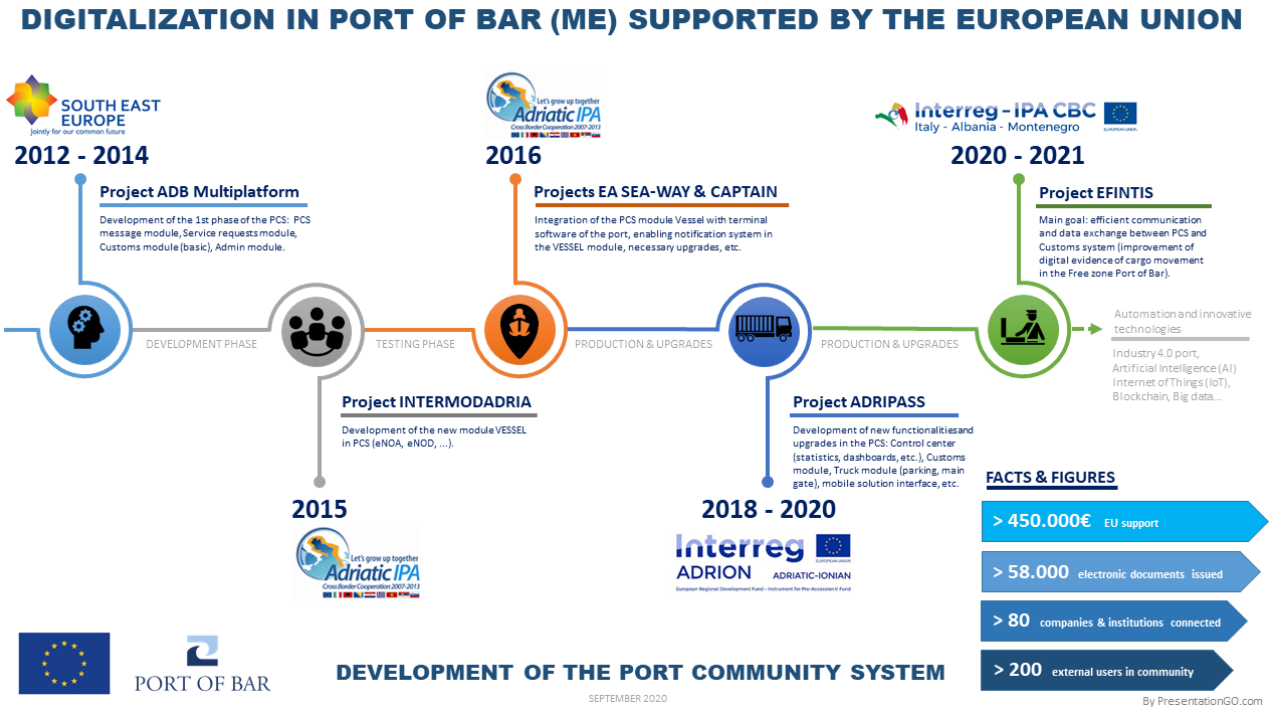
All of these projects are meant to facilitate trade inside and outside Montenegro borders with great positive effect on national economy with new incentives for investment projects, with private - public partnerships. Better connections, fluent transport flows and facilitation of the maritime connections should influence higher tourism level but also entrepreneurial potential for entire Montenegro country. This way, when implemented, these projects will ensure good connectivity and

environmentally friendly solutions. These projects will support Montenegro's integration by improving connectivity between Montenegro and neighboring countries solely by improving infrastructure and services between important ports along Adriatic coast facilitating the flow of goods, reducing transportation costs, while at the same time enhancing safety and reliability of transport.

3 INNOVATION CLUSTER

3.1 Introduction and goals

Port Community System (PCS) in Bar was developed and later upgraded through EU-funded projects. Development of the system was enabled by ADB Multiplatform project (IPA SEE Programme) in 2014, and it was later upgraded through Intermodadria, EA-SEA WAY, CAPTAIN (IPA Adriatic Programme) and, the most recent, ADRIPASS project (ADRION Programme).



Digitalization in Port of Bar supported by Interreg programmes of the EU

PCS platform has undoubtedly improved port operations and increased competitiveness of the Port of Bar. Motivations to implement and develop a PCS was to improve the accessibility, meet requirements of the logistic community, improve port operations and increase competitiveness, interchange data between all subjects in the logistics chain, avoid paper, formalize processes, prepare for implementation of the EU legislation (EU Directive 65/2010, etc.).

During this process, electronic exchange of all relevant information related to ship's arrival and departure was deployed, IMO FAL forms were introduced (EA SEA WAY), efficient up-to-date exchange

of information delivered by machine generated emails about different actions in the PCS was performed, while actively engaging main stakeholders (CAPTAIN), and with the most recent pilot action control centre was upgraded, as well as customs and truck module, possibilities to view, create and certificate some documents in PCS were established by using mobile phone or tablet, and user interface was improved (ADRIPASS).

Remaining actions that need to be implemented include: upgrade of functionalities related to the dangerous goods, functionalities related to railway, uploading customs documents to the system, automatic check-up of customs data in work orders, blocking containers by the Customs in PCS, informing external agents about cargo status and electronic signature / approval of port's documents that are described below in detail.

3.2 Stakeholders involved

All stakeholders are described in 2.2

3.3 Key actions

- **Key Action n. 1**

Development of PCS module related to the handling of dangerous goods

A Port Community System is a system which handles electronic communication in ports between the different users, namely private transport operators, port operators, port authorities, Customs and other authorities etc. Having that in mind, dangerous goods handling represents one of the primary actions to be implemented in the PCS of Port of Bar. Before taking any action, specific measures must be assured in order to allow proper operation of handling dangerous goods, i.e. respecting different safety and security standards, especially in case of handling dangerous cargo, used modes of their transport and so on. When all these criteria are met, port operator can continue its work on handling dangerous goods. “Port of Bar” H.Co. is devoted to performing port operations while maintaining high level of efficiency, safety and security of its employees and as in this case, handling dangerous goods.

With providing services of handling dangerous cargo, Port of Bar provides many advantages to its users. The major benefits are related to higher efficiency and speed while performing operations of handling, particularly thanks to automatization and the reduction of unnecessary paperwork. PCS module of handling dangerous cargo shall contribute to sustainable transport logistics between various stakeholders of port's services and support efforts to meet carbon reduction requirements at a global level. While performing dangerous goods handling, connection infrastructure will be improved as it will: provide coordination among port authority, Port of Bar and end-users; digitalize port procedures so as to improve efficiency and reliability of port services related to specific services; to improve ICT infrastructure that would enable improvement of port services and improvement of safety and security of port operations.

The process of handling dangerous goods is performed in line with defined technology of work, which was created based on Material Safety Data Sheet (referring to specific dangerous goods) and other relevant written recommendation. It is defined by strict rules and procedures. Work orders on which dangerous cargo is mentioned do not differ from the rest, and although they pass through a process of strict rules, such processes cannot be seen at the moment through information system (application).

The key action consists in development of a step, prior to usual steps: it would examine whether criteria for handling dangerous cargo are met. When documentation is prepared, a person in charge shall give a green light for such handling, and only then a work order could be verified. Supporting documentation must be scanned and attached to the work order.

Inquiry for providing new service could be created electronically and connected to workflow, so that until a document *Technology of handling dangerous goods* is created, work order shall wait for approval. The competent person checks the documentation, scans them and attaches to work order. A forwarding agent should state that the cargo is dangerous, and such information should be included in the contract between the port and forwarding agent. Work order must contain a special box or flag which clearly shows it, and the forwarding agent is obliged to tick it. In that way, such work orders in workflow differ from the rest work orders, and they are transferred to alternative flow.

It is also possible to automatize the overall processes by introduction of special reader for dangerous goods.

A list of possible PCS functionalities related to handling dangerous goods would be the following:

- Advanced pre - notification for all dangerous goods arriving by sea or land
- Administrative procedures regarding IMPORT, EXPORT and TRANSHIPMENT of Dangerous goods.
- Safety requirements digital guidelines and library
- Dangerous goods LODGEMENTS management
    - Permitted Time Periods at the Terminal
    - Separation distance
    - IMDG route tracking
    - IMDG Stowage monitoring
- Detection of prohibit dangerous goods in port
- Digital contact and cargo information
- Symbol seeker application on gates
- IMDG Class 1 (explosives) management:
    - Detection of class 1. Labels without pre notification message
    - Port limits for explosives (Import, Export, Transshipment and lodgments)
    - Monitoring the exact time
- Alert management system for IMDG cargo
- Integration with the SSN and NSW
- UN code list for IMDG
- Verify if a cargo has an adequate label applied
- Integration with AGS (Automated Gate System) for rail, road and vessel
- Solid Waste Management
- Sludge and oily residues management
- Management of Radioactive Waste
- Graphical representation of IMDG cargo
- Reporting tool
- IMDG History tool

- Interactive Emergency response plans

➢ **Key Action n. 2**

<u>Uploading customs documents to the system</u>

As PCS represents a system which enables efficient, easy and transparent exchange of reliable data, one of the key action Port of Bar will deal is uploading customs documents to the system. In such way, it will enable key actors in maritime industry to not only be involved within the processes concerning their businesses, but also to be informed about data relevant to their scope of work. Uploading of documents shall contribute to seamless exchange of information between the Customs and other parties operating in the port.

By including Customs as a major stakeholder in port operations, the Customs will have several benefits of improving, digitalization customs procedures and reducing paperwork. Uploading customs documents to the system will provide seamless and smooth operations of trade and provide automated solution to submit customs documents electronically, with no need to have printed multiple copies. The following functionality will ease unnecessary duplication of data, formalize processes of uploading document related to loading and discharge of ships, port operations etc. As such, this functionality shall be created with the aim of facilitating the use of electronic data exchange, providing real-time information system containing reliable, precise and accurate date providing efficiency at all stages

For the time being, with regard to the action of uploading customs documents to the system, currently, a forwarding agent must ensure that all customs documents are valid before a driver arrives to a port, and when he arrives to a gate, he must possess a work order and necessary customs documents which would allow him to enter. Therefore, waiting for customs documents to be prepared is considered as a bottleneck in the whole process. The situation becomes even more complicated when data are entered into the port's system not by the Customs, but by a forwarding agent after he gets necessary data from the Customs.

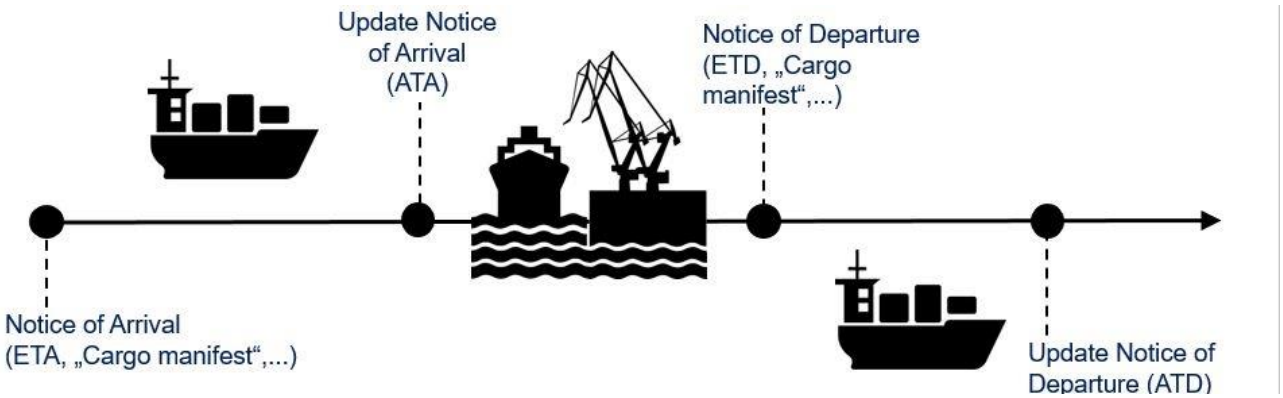
In this action, what is proposed to be done is, in cases where customs documentation is received subsequently, to allow uploading and verifying work orders without complete customs documentation,

and then allowing forwarding agents or Customs to enter data to the system afterwards, to a separate part of work order or as an attachment to work order.

In order to reduce the abovementioned bottleneck, or even eliminate it, it is advised to connect port's and customs' systems, directly or through PCS. In addition, there are cases where bottlenecks could be reduced by customs' consent that work could be performed even before the Customs finishes its work.

The following example could be the solution:

Pre-clearing refers to cargo which arrives to the port by sea. A forwarding agent is allowed to send work orders along with ship's manifest to the Customs, thus allowing the performance of work, although a ship is still at sea and customs documents are not prepared. Customs service shall send a status for each ship through web service to a port's system.



Automatic check-up of customs data in work orders

For the time being, customs data in work orders are not equal to the real data in customs system. Customs documents are attached to work order and the existing system does not control the type of document. Data entered by the Customs agent may be wrong (due to a mistake made by entering data) or not updated (in case of change). In case that forwarding agent enters such data, the chance of mistake is increased. After automatic check-up, data could be integrated and could be referenced not only to the Government officials, but also business actors.

By using PCS system, customs system may be integrated so as to check the availability, type, validity and status of necessary customs documents. Some data must be available during validation of work order, other in later phases, but all must be included before finalization of work order. A key action proposes that for each work order, direction of cargo, type of transport and customs status it should be defined which customs documents a forwarding agent should mention in work order.

Blocking containers by the Customs in PCS

Blocking containers by the Customs in PCS represent a prerequisite for successful implementation of ICT solutions in Port of Bar. Through this functionality, the Customs would always check the presence and status of each container located in the port, before sending a vehicle to a terminal for the purpose of loading/unloading the container. This functionality of blocking containers will allow better inspection and transparency of cargo flow in the port. In addition, dangerous cargo held in containers will be blocked in order to reduce inspection burden and reduce costs. This functionality is currently not available in the current port system.

As a part of action, it would be possible to implement alternative flow for containers' work orders, and the Customs could block a specific container due to customs check-up by making a request to PCS. Such container could not leave the port prior to unblocking made by the Customs. For blocked container, PCS would not allow issuing work order, and Lubaris would block all actions related to issuing documents for blocked container.

Until the work is done properly, specific containers will be held at terminals. The aim of this functionality is to reduce delays and added costs, while at the same time ensuring the earliest release of container as per performed inspection.

- **Key Action n. 3**

Informing external agents about cargo status

Informing external agents about cargo status is necessary for PCS full operation and is one of the actions deriving from using PCS. Since each stakeholder in maritime industry has its role according to the specific work it performs, whether it is a forwarding agent, the Customs, etc. informing about

cargo status is an option which should be provided to end-users nevertheless. The aim is to provide them with detailed and precise data regarding cargo status, control and tracking through the whole logistics chain in order to perform their duties with no loss of time or efforts, or to lessen them to a certain level. In this key action, external agents could have access to an adapted version of a report, with possibility to search their data, and have access to strictly defined areas. In addition, certain external agents could receive PCS messages, e-mails or EDIFACT messages containing previously defined data. In such way, errors in these reports could be reduced, and services could become automated, extra paperwork could be avoided.

The following portal functionalities could be implemented:

- Community Portal with all relevant public information (general information, tariff, etc.)
- Reporting center
- Location and customs status of the cargo (container)
- Support for electronic invoices
- Ports tariff
- Contract management
- Concession management
- Vessels in port
- Premises rentals
- Document system for port community members
- Environmental reports & green port capabilities (emission monitoring, etc.)
- Permits issuing (guests, vehicles, etc.)
- Port view portal (graphical representation of the port)

➢ **Key Action n. 4**

Electronic signature / approval of port's documents

Since shipping is one of the fastest growing industries in worldwide, it must keep pace with up-to-date improvements and innovations. One of those innovations is implementation of electronic signature. The greatest advantage of electronic signature is its easy use. Port users/stakeholders can sign documents online thus avoiding waste of time and energy which could be used for other more important purposes. In addition, electronic signature facilitates work and allows individuals to

perform duties much faster, while at the same time allows elimination of printing, scanning etc. Moreover, electronic signature allows involved parties not to appear in the premises of the port, thus facilitating business protocols.

Instead of printing and co-signing the documents on the spot, this action proposes implementation of electronic signature, while implementing valid standards in the state (PKI certificates, etc.). During status implementation of specific documents (workflow), it is possible to introduce a step which includes approval by a third party (forwarding agent, the Customs, agents, railway operator,...) for documents which require co-signing, and the third party would obtain a specific document through overflow, and after co-signing, they would return the document to a submitter.

Electronic signature therefore provides complete and secured signing of port documents. Modern problems require electronic solutions which would minimize the level of unnecessary paperwork, and improve port efficiency at the same time. In addition, Port of Bar devotes its efforts to cyber security, which is a core practice of protecting port system, network, and port programs from maleficent digital attacks. As cyber security has been an inexhaustible topic for several past years, significant efforts should be devoted to resolving such issue that could interrupt normal business processes of the port, and change or even destroy sensitive information stored for port end-users. Therefore, electronic signature is one of the ways of overcoming these obstacles which could hinder overall port performance and lead to disruption. Electronic approval of port's documents could help in avoiding duplicates, providing real-time, authentic documents that could not be altered or changed in any way, thus contributing to growing challenges in IT sectors in many ports are facing nowadays. However, it should be noted that implementing effective measures against cyberattacks are particularly challenging these days, and the necessary steps such as digital approval of port's documents should be considered with great care.

- **Key Action n. 5**

Railway module

Since railway is a transport mode usually connecting a port with hinterland, it represents an important link in intermodal transport chain. Without innovations and upgrades of railway module in Port Community System, there is no development in the transport chain which includes port as well.

Upgrade of the Railway Module in Port Community System of Port of Bar will not only be important to the port itself, but to the railway network in Montenegro.

Thanks to the possibility to of pre-notification, port could implement this module in order to have improved terminal planning, by which its organization of operations could be optimized and utilization of its services improved and benefitted, since all actors included could have a clear view of the availability and amount of the cargo, transparency and control could be provided to government agencies in charge for inspection and supervision of transport flows, as well as document status regarding railway cargo could be available.

All this would be performed with the final objective of connecting the port with railway so as to integrate them in the transport chain of Montenegro, and to add them value as significant generators of income in transport industry of the Republic of Montenegro. The mentioned key action n. 5 enables the port to optimize its inland logistics and to improve visibility in the supply chain. In addition, adding to previous key actions, efficiency and overall transport performance of the port could be boosted. The following could be used as an incentive for development of infrastructure or expansion of the road and rail connections within the port area.

The following upgrades in PCS related to railway could be the following:

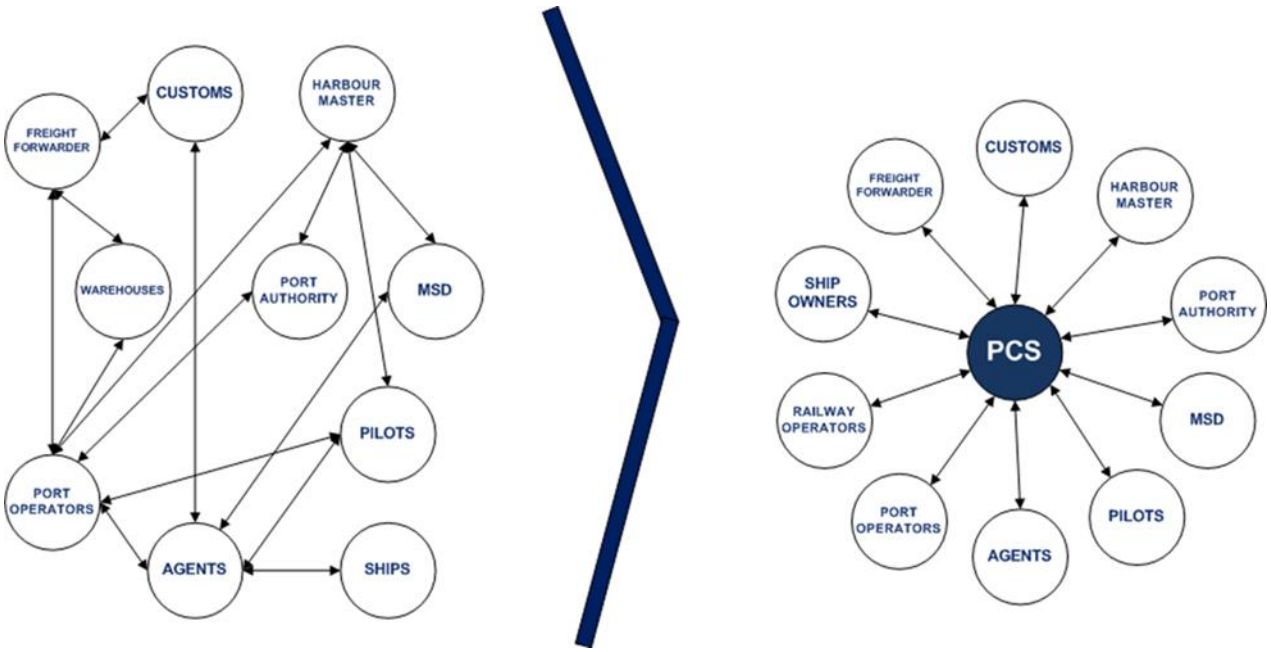
- Train in arrival and departure
- Schedule of rail lines
- Rail operations traceability
- Railway composition announcement in arrival
- Railway composition announcement in departure
- Order for empty wagons (booking)
- List of wagons for containers in arrival
- List of wagons for containers in departure
- Train reception and expedition (wagons exchange, etc.)
- Monitoring of freight in wagons
- Train tracking
- Integration with rail operators' information systems
- Statistical reports related to railway
- Integration between rail related PCS modules and Customs system

3.4 Aims

In a general sense, the aim of these actions is to improve port operations and increase competitiveness between the port and the hinterland and with these actions, Port of Bar will improve the accessibility of the port and meet requirements of the logistic community. All these actions are very important for future integration with National Single Window.

Main aims of Port of Bar's innovation key actions could be summarised as follows:

- to ensure efficient and secure exchange of working documentation for all subjects in the port community;
- to achieve transparency of services for public authorities and service users, according to their role;
- to improve port operations;
- to increase competitiveness of the port;
- to reduce service costs;
- to improve capacity of transport stakeholders;



Flow of information before and after implementation of the Port Community System

3.5 Problems faced

Active involvement of stakeholders is one of the key prerequisites for successful implementation of key actions related to the upgrade of PCS. Lack of their active involvement may result in inadequate upgrade and in lag in technological level compared to other ports.

3.6 Timescale implementation

Canvas	Name of the action	Estimation of the Investment cost (€)	Timeframe
Innovation canvas	1. Development of PCS module related to the dangerous goods handling	65 000	2020-2025
	2. Uploading customs documents to the system	80 000	
	3. Informing external agents about cargo status	30 000	
	4. Electronic signature / approval of port's documents	25 000	
	5. Railway module	50 000	

3.7 Risk analysis

For implementation of innovation activities and PCS upgrade it is of vital importance that stakeholders' active involvement and cooperation is ensured every step of the process since it is planned and expected that the existing PCS becomes a gateway for the National Single Window of Montenegro. Other risk can be connected with non-alignment between programming of various governing bodies and RFI and extension of work beyond the scheduled time.

3.8 Funding sources

Potential funding source could be as it follows:

- Own funds
- EU grants/subsidies

- National subsidies

3.9 Impact on bottlenecks

As it was previously mentioned, proposed actions aim to resolve some of the main operational bottlenecks that the institution and stakeholders are currently facing. Proposed actions are designed to facilitate communication among users using modern IT tools and serve as main mode of communication.

Improvements of infrastructure represent key actions in order to improve port's general performance. The main objectives include upgrades of the existing ICT infrastructure to foster transport digitalization, data sharing and improving communication. However, one of the core aims is to maintain a multimodal transport network. Special attention and efforts through these actions should be devoted to maintenance and promotion of multimodal transport infrastructures that serve to transport of people and goods, and they shall be seen as an objective of the growing demand for mobility in growing economic developing areas of the Western Balkans. This as a major challenge hampers the development of freight transport in Port of Bar as important node in this part of the South-East Europe. Moreover, outcomes by implementing these key actions would be improvement of efficiency, upgrade of ICT and port operations.

Another key objective is implementation and active utilization of tools that would facilitate changes across transport sector, which is an inevitable prerequisite for delivering change in industry in general. Digitalization of transport sector should be a key driver in transport industry, which would include connecting clients, consumers and stakeholders, smart IT infrastructure, seamless mobility solutions, proper and efficient data management. These innovations could be drivers to both public and private actors to willingly put efforts in developing seamless multimodal solutions and options.

4 IMPLEMENTATION

Integration of Montenegro into the European Union is essential for social, political and economic reasons while integrating transport system is one of the essential issues. Montenegro is aspiring to reach compliance with EU regulations in all sectors, same goes for transport. Accordingly, the efforts have been taken to comply with White Paper as EU's main document related to transport and Transport Development Strategy 2019 is pursuing goals set in the White paper as well as in other WU transport regulations.

White Paper prescribes uniform safety standards in all types of transport, costs, environmental protection measures, etc. It contains defined elements - attributes of the new EU transport system based on the "three I" principles (interconnectivity, intermodality, interoperability). The basic aspirations are to achieve greater balance of individual modes of transport (regulated competition, connecting traffic branch), then towards the removal of bottlenecks within the system (relieving the main directions and difficulties of financing) and towards placing users at the center of transport policy.

Based on this document it can be said that the main trend in the EU policy, when it comes defining the development concept of the future transport system, is creating conditions for accelerated development intermodality, with the aim of increasing the overall efficiency of the transport system, thus affecting changing the existing unfavorable modal split to the desired values and creating conditions for reducing the negative impact of traffic on the environment.

The following policy objectives for structuring and developing the trans-European transport network have been defined:

- spatial competitiveness - expressed in the need for faster, safer and cheaper transport, in order to it was possible to increase the competitiveness of the area, i.e. the level of infrastructural equipment European space;
- spatial balance - avoiding excessive concentration material goods and population in developed regions and urban centers, primarily by strengthening connection and increase in traffic and communication accessibility less developed, peripheral and rare populated regions;

- quality of space - expressed by the optimal combination of existing forms of transport (multimodality, interoperability), in order to improve transport performance and reduce negative environmental impact;

In accordance with the above, the basic goals of investment in Port of Bar as a port of national interest, and main cargo port in Montenegro, are in accordance with those of EU as Port of Bar is looking to reach increase of overall efficiency, to reach higher environmental acceptability while also reducing costs, to be integrated in wider transport systems (better connections, wider market reach) by investing in key actions covered by this Action plan.

Given its size and economic situation, Montenegro and Port of Bar are not in a position to provide entire funding of the projects. Regarding that, Port of Bar Montenegro needs support from Montenegro and EU's financial institutions, loans, private sector partnership, which require precise strategic documents indicating the importance and economic justification of such investments.

Annex I – CANVAS Action Plan - Infrastructure

Stakeholders involved	**Key Actions**	**Aims**	**Problems faced**	**Timescale implementation** (for key action)
• Ministry of Transport and Maritime Affairs • Maritime Safety and Port Management Department of Montenegro • Office for European Integrations • Municipality of Bar • Interlog Bar • Logicar	1. Restruction of the construction of the quay Volujica (554m in length) and Extension of the quay Volujica (166m in length) 2. Extension of the quay at Passenger terminal in Port of Bar 3.Rehabilitation of road infrastructure 4. Reconstruction of energy network (10/0.4 KV substations) 5. Construction of open storage 166x50 in the hinterland of planned extension 6. Dredging the depth to 14m at the extended part of the termninal 7. Construction of closed warehouse aprox. 7.000 m2 8. Construction of acetic acid reservoir 5.000 t capacity 9. Construction of a system for handling and storage of LNG	Optimal use of infrastructure Financial sustainability of infrastructural investment Elimination of risks to people tangible assets that exist due to damages Enabling adequate utilization of existing infrastructure and achieving higher productivity	Funding acquisition Implementation of interventions	2020-2030

I. Funding sources	**II. Risk analysis**
• Own funds • Loans • EU grants/subsidies • PPP funding • National subsidies/projects	Incorrect cost estimate Difficulties in conducting public procurement procedures Extension of work beyond the scheduled time Obtaining the required permits Environmental factors

Annex II – CANVAS Action Plan - Innovation

Stakeholders involved	Key Actions	Aims	Problems faced	Timescale implementation
• Ministry of Transport and Maritime Affairs • Maritime Safety and Port Management Department of Montenegro • Office for European Integrations • Interlog Bar • Logicar	**1.** Development of PCS module related to the handling of dangerous goods **2.** Uploading Customs documents to the system **3.** Informing extenal agents about cargo status **4.** Electronic signature / approval of port's documents **5.** Railway module	Further upgrade of PCS Wider network of users Improvement of railway and dangerous goods modules Paperless communication among users Provision of functionalities of processes and documentation Integration and compliance with EU directives	Approval of plan by institutional bodies and their active involvement in process Lag in technological development compared to competitive ports	(for key action) 2020-2025

• **Funding sources** • Own funds • EU grants/subsidies • National subsidies	**III. Risk analysis** Failure to achieve active involvement of all stakeholders involved Non-alignment between programming of various governing bodies and RFI Extension of work beyond the scheduled time