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1. Definition of “sustainable port as a key element of wider low carbon strategies”

The Slovenian coast is a relatively small area where many activities take place. One of the most important ones is definitely a harbor transport business, which co-shaped the image of Koper and has a significant impact on the quality of life of its inhabitants, considering the vicinity of port's area to the city centre. In its more than 60 years of life, the Port of Koper has experienced remarkable development and has established itself internationally.

The development of the port has, in recent years, sparked a series of discussions, questions and initiatives. Different opinions are recorded in the plans for the construction of the third pier. Many stakeholders were included in spatial planning and local community was heard in order to include the necessity of citizens in the development of port's area. It started mainly by discovering a poor knowledge of port's work and familiarity with how developers are implementing their responsibilities to the environment in the port.

In order to be better informed about the activities related to the port, Luka Koper, d.d. has established a portal for the sustainable development of the port of Koper - www.zivetispristaniscem.si through which citizens and interested stakeholders or public entities can obtain an idea about the level of pollution and can find “live” data about emissions.

In this respect, Luka Koper's idea about the definition of a “Sustainable port” is that it's always linked with the better quality of life across the area of the port. Being aware of the port's impact on the environment, Luka Koper has committed in its policies to sound management of the environment in order to preserve it for future generations. The processes of monitoring and reducing environmental impacts have become part of regular activities. To this end, Luka Koper, d. d. works with competent specialized institutions.

To better define the “Sustainable port” in the Slovenian context, we have to understand that the port of Koper is part of the city of Koper and at the same time is a sensitive natural environment. On the two sides it is surrounded by a compact settlement, in the hinterland with a natural environment of special value, *Škocjanski zaliv*, and outwardly it is surrounded by a delicate marine ecosystem. Luka Koper, d.d. therefore takes every step with the thought of its neighbors. For the quality of life of the inhabitants, the company wants to improve, and not the neighbors to adapt to the port. Luka Koper, d.d. strives to keep nature as preserved as possible for future generations. It's not always easy, because everything depends not just on Luka Koper's actions. All challenges must be understood and resolved in the spirit of good neighborly relations.

The development strategy of Luka Koper is based on environmental management. It follows from the principle which should also represent the local definition of “Sustainable port” which can be expressed like an *"Introduction of measures that will not only meet legal requirements, but also reduce the adverse effects with the best technology available, to preserve the environment and allow the port to grow¹"*.

Luka Koper, d.d. is the only port in the North Adriatic, which has established quality systems for the protection of the environment, safety and health at work, food safety management and others. The

¹ Definition agreed during meetings of NEPTUNES project attended by Luka Koper's representatives. More details about the project area available at the link <https://www.neptunes.pro/>

company has a regulated environmental system according to the most demanding environmental criteria of the EMAS system. Luka Koper acquired the EMAS certificate for the first time in 2010.

The objective of EMAS is to promote the continuous improvement of the environmental performance of organizations, to objectively and regularly evaluate the performance of the system, to provide information on environmental performance, to open dialogues with public and other stakeholders, and to allow appropriate training and employee involvement.

At this regard, one of the first steps made through the SUPAIR project was to invite stakeholders and local community at a Focus Group, to better understand which are the sensitive problems that are affecting the port's area from the environmental point of view and which can be the possible solutions for a short-term period, or for a long-term period. More details will be provided in next chapters.

Koper's port main guidelines for protecting the natural environment can be summarized as follows:

- the introduction of modern and sustainable technology both from an environmental and financial point of view;
- permanent reduction of emissions into the environment (regular monitoring of results and reporting);
- care for partnership with local communities;
- ensuring preparedness for action in the event of an emergency;
- continuous improvement of the environmental management system;
- care for the quality of the port area and its natural environment with greening (in the port area Luka Koper has more than 2,000 trees and shrubs planted).

Care for the environment, safety and health at work is an integral part of the management policy and the organizational culture of Luka Koper. The development of the port and the increasing flow of cargo provide it with an even greater concern for the environment and space, while balancing the environmental, social and economic requirements.

The concept of a "*green and sustainable*" port will continue to be developed in the future, so the company prepared a strategy for the management of the environment by 2030 which is periodically updated as an effect of global technological development, also considering Luka Koper, d.d. quotation at the Slovenian Stock Exchange.

2. Understanding current port operations and management models

Luka Koper, d.d. is member of the EU project SUPAIR through which different activities are conducted aiming at reducing the gap in the environmental protection measures and in the collaboration with the local community in order to live in symbiosis with the city.

The Action Plan is part of the WP T1, which is dedicated to the identification of actual situations about ports' sustainability and development at regional level. In this respect, the port of Koper identified some critical points related to the environmental issues affecting the area, which should be discussed with stakeholders and national/regional entities, for the sustainable development of the area. Even if the SUPAIR activities are clearly defined and followed, the treated arguments and related measures studied are themes that would always be actual and would represent a priority for the Port of Koper. That's why the proposed Action Plan from Luka Koper, d.d. is the natural continuation of the results obtained through the organization of the Focus Group, in April 2018. During the event, stakeholders, municipalities and citizens collaborated in the definition of priorities and crucial areas of intervention in the near future for what regards sustainability of the port of Koper with the potential development near the city centre. In that occasion, needs for more accurate analysis, monitoring and specific areas of intervention were defined: identification of noise pollutants (aerial and underwater), analysis of underwater flows and quality of the water / ballast waters in case of accidents and spreading, smart / electric solutions for cruise terminal (which is situated in proximity of downtown) and environmental sustainability of port's growth.

At this regard, Luka Koper d.d. started in July 2018 the definition of the Action Plan with the identification of the areas of intervention to be tackled during SUPAIR project's duration and also to be maintained and developed after the end of the project for the next years. To summarize the crucial points, the focus about actions related to the sustainability in the port of Koper are the following:

- Installation of new sensors and monitoring system for noise detection to be installed in the port, near the city centre, to check the quality on the border between the city and the port;
- study for underwater flows and water quality in port's basins, will represent the basis for installation of sensors and water quality cameras. It is going to represent also a starting point for parallel activities, considering that it will help port's intervention units to monitor water's quality and to develop emergency plans in case of accidents in port's basins or in the proximity of the port. This study covers also the risks associated with ballast waters or leaks of dangerous fluids from vessels or from drains areas;
- underwater cameras and sensors have been installed in port's basin as a supporting tool for the necessary analysis, to check and foresee movements of pollutants in case of accidents, dispersions and leaks.

During these interventions the collaboration with stakeholders, national institutions and municipalities will be constantly maintained and after the end of measurements, analysis and comparison of scenarios (before and after the SUPAIR interventions), the final Action Plan has been completed and will be delivered to the involved parties in order to develop a sustainable port in the future, also after the end of the project.

2.1 PORT OF KOPER CERTIFICATIONS AND REFERENCES TO REGULATIONS

Employees in Luka Koper are aware of the impacts of port activity on the environment. The company's business policy pursues prudent management of the environment to preserve it for the generations to come. Monitoring and managing environmental impacts has thus become part of the regular activities of the company.

In the year 2000, Luka Koper was one of the first European and the only Mediterranean port to establish an environment management system according to the ISO 14001 standard, applying to all port activities, and it is constantly building upon it. In May 2006 the standard was upgraded to ISO 14001:2004. In 2010 Luka Koper gained the EMAS certificate and became compliant with the very highest environment protection criteria. The company regularly monitors and supervises the environmental impacts of port activities in co-operation with the presiding expert institutions.

Luka Koper treats the area of environment management as a whole. The fact that Luka Koper, d.d. is not a port authority but is a company who manages the entire area of the port makes it possible to implement the protection system at all terminals and in all its activities. With the help and inspection of presiding expert institutions, the company regularly monitors substance and noise emissions. In addition to this, the company provides for plant-scaping of the port area and in this way improves its appearance.

From the recycling point of view, Luka Koper, d.d. systematically manages waste. It has introduced separate collection of waste and materials for recycling. A modern waste management centre has been built. The quantity of unusable waste has decreased considerably, the cleanliness and appearance of Luka Koper's working environment has improved, and at the same time its operations have become more cost-effective. Currently, more than 70% of all waste in the port is collected separately and forwarded to recycling. The environment management system includes all employees, who also regularly undergo training. The Environmental Manager attends international seminars and conferences as well.

During its reporting and planning activity, Luka Koper provides also a Sustainability Report (SR) which fulfils all the conditions defining the publication of the non-financial statement. In line with the amendments to the Companies Act (ZGD-1J, Official Gazette of the Republic of Slovenia, 15/2017, 31 Dec 2017), the Sustainability Report from 2017 takes into account the requirement to publish a non-financial statement as set out in amendments to articles 56, 57, 60a and 70c of ZGD-1J. The said amendments to ZGD-1J also comply with the requirements of the Guidelines on nonfinancial reporting (methodology for reporting non-financial information), which were adopted and published in the Official Journal of the European Union in July 2017, and follow the provisions of the Directive on disclosure of non-financial and diversity information by certain large undertakings and groups. The SR of Luka Koper is a major milestone on the path of reporting on sustainable development, this being the first report for which the Luka Koper Group fully followed the Global Reporting Initiative Standards (GRI), thus enriching the previous sustainability reports in the framework of annual reports and EMAS-based environmental reports. The report is devised at the basic level of reporting. In devising the report and defining the essential content, Luka Koper uses all six GRI standards:

- ✓ GRI 101: where the company takes into consideration the Reporting Principles for defining report content and report quality.

- ✓ GRI 102: where the company reports on the organization and its sustainability reporting practices, the organization's profile, strategy, ethics and integrity, governance, stakeholder engagement practices, and reporting process.
- ✓ GRI 103: where the company uses the management approach to reporting of how the organization manages the materials topics that are covered by topic-specific standards GRI 200, 300 and 400.
- ✓ GRI 200, 300 and 400: where the company uses indicators for reporting on the organization's impacts on economic, environmental and social issues.

2.2 LUKA KOPER AND SUSTAINABLE DEVELOPMENT GOALS

Being aware that the port is an important sustainable development stakeholder whose impacts on the environment and society may be both positive and negative, Luka Koper has decided to accede to addressing global sustainable development goals in the context of comprehensive sustainability reporting. Sustainable Development Goals (SDG) have been adopted by all United Nations member states, their purpose being to pursue the development of the entire society, economy, science and civil society - which will play an important role in attaining the key objectives of the society as a whole by 2030. Sustainable development goals have been published in Slovenian on the website of the Ministry of Foreign Affairs:




http://www.mzz.gov.si/zunanja_politika_in_mednarodno_pravo/mednarodno_razvojno_sodelovanje_in_humanitarna_pomoc/politike_mrs/cilji_trajnostnega_razvoja/




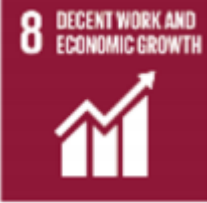

Figure 1 - Sustainable Development Goals

With its efforts, Luka Koper addresses 11 sustainable development goals, which are described here above:

Sustainable development goal	Description of Luka Koper's activity	Links to essential content	Indicator example	Goals
 <p>3 GOOD HEALTH AND WELL-BEING</p>	<p>Managing the occupational health and safety system in accordance with the international OHSAS 18001 standard and its upgrading to include all novelties</p> <p>Targeted training for safe work of employees and others in the area of the Port with regard to anticipated injuries</p> <p>Providing an efficient system of health promotion in the working environment</p> <p>Managing concentrations of harmful substances under the statutory limits</p> <p>Execution of analyses, measurements and load tests</p> <p>Reducing the noise level in the port and noise from ships by means of organizational and investment projects</p> <p>Compliance of outdoor lighting with legislation</p> <p>Devising the strategy of fire protection development in the port</p> <p>Modernizing fire protection systems</p>	<p>Providing a safe working environment</p> <p>Assessing respect for human rights</p> <p>Noise and light pollution</p> <p>Customer health and safety</p>	<p>The number of serious injuries at work</p> <p>The number of injuries at work per million hours worked</p> <p>The number of extraordinary events per million hours worked</p> <p>The number of patrols</p> <p>Noise level at night in the direction of the city of Koper</p> <p>Noise level by day in the direction of the city of Koper</p> <p>Percentage of compliance of outdoor lighting</p>	<p>A maximum of 18 injuries at work and 0 serious injuries per million hours worked</p> <p>A maximum of 25 extraordinary events per million hours worked</p> <p>To reduce the noise level at night in the direction of the city of Koper to 48 dB</p> <p>To keep the daily noise level in front of the nearest buildings outside the port area below 58 dB despite the increase in throughput and enlargement of the port</p> <p>To reduce light pollution</p> <p>To ensure an adequate supply system and a sufficient quantity of water for fire extinguishing throughout the port area, in line with EU regulatory</p>

	<p>Targeted execution of functional expert training</p> <p>Integrating all employees in the training</p> <p>Providing co-financing to employees for acquiring a higher level of education</p> <p>Improving knowledge transfer systems (mentoring, tutoring)</p> <p>Assessing employee competencies (execution of annual interviews)</p>	<p>Safety at work</p> <p>Training of employees and improvement of their competences</p>	<p>Percentage of accidents occurred during port's operations</p> <p>Number of employees participating to seminars, educational courses and periodical upgrades of licenses</p>	<p>Employees properly informed about working processes and safety at work</p> <p>Reduction of accidents at work in port's area</p>
	<p>Consistent implementation of provisions of the Code of Ethics</p> <p>The Diversity Policy, which is in the process of being adopted, sets out the target diversity that it is pursued in relation to the representation in the Supervisory Board and the Management Board based on gender, age, education level and other personal characteristics of members as appropriate for the Company</p> <p>Respect for the rights of employees to freedom of association, membership in trade unions and the workers' council, and other forms of association</p> <p>Consistent implementation of Rules on protection of dignity at work</p>	<p>Diversity and equal opportunities, and non-discrimination</p>	<p>Share of employees on the basis of gender, age, education level, etc.</p>	<p>Absolute non-discrimination</p> <p>Satisfied employees</p> <p>Consistent respect of rights acquired by employees</p>
	<p>Reducing drinking water losses</p>	<p>Water use</p>	<p>Specific consumption of water</p>	<p>Maintaining the consumption of energy products and their level of pollution within EU regulatory parameters, despite the increase in throughput and</p>

				storage capacities – drinking water
	<p>Introducing energy efficiency measures</p> <p>Establishing the energy management system in profit centres and subsidiaries</p> <p>Installing the measuring equipment to acquire the data on consumption of energy products on the machinery, at facilities and infrastructure</p> <p>Acquiring the certification for the ISO 50001 standard - energy management</p> <p>Electrifying machinery and vehicles</p> <p>Establishing a central control system for port lighting</p> <p>Actively introducing state-of-the-art and cleanest technologies to ensure energy efficiency in carrying out port activity</p> <p>Acquiring electricity for heating of buildings from renewable energy sources</p>	<p>Energy efficiency</p> <p>Commitment to sustainable development</p>	<p>Specific fuel consumption</p> <p>Specific electricity consumption</p>	<p>Maintaining the consumption of energy products and their level of pollution within EU regulatory parameters, despite the increase in throughput and storage capacities - motor fuel and electricity</p>

 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<p>Following strategic orientations aimed at the long-term business stability, Luka Koper wishes to contribute to high economic growth</p> <p>Acquiring and maintaining the best staff</p> <p>Achieving the culture of high performance and excellent management</p> <p>Executing management by objectives (annual interviews)</p> <p>Ensuring customer satisfaction and commitment</p> <p>Implementing the system of human resource potentials and successors</p> <p>New employee hires based on the principle of "competent staff - key positions"</p> <p>Managing the effective employee working time optimally</p>	<p>Stability and business Performance</p> <p>Indirect economic impacts</p> <p>Importance of employment and concern for the employees</p>	<p>Financial ratios</p> <p>Net sales</p> <p>Share of annual interviews implemented</p> <p>Assessment of atmosphere and employee satisfaction</p> <p>Assessment of employee commitment</p> <p>Share of suitable Managers (management competency assessment based on the 360-degree method)</p> <p>Share of unused compensatory and balance working hours</p>	<p>Realizing development projects by 2020, such as extension of Pier I and rearrangement of additional storage areas</p> <p>Reaching 100% realization of personnel plans each year</p> <p>2020: 98% share of annual interviews implemented</p> <p>98% share of suitable managers</p> <p>Assessment of employee commitment 3.7</p> <p>Less than 5% share of unused compensatory and balance working hours</p>
 <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	<p>Creating integrated transport solutions by combining various links of the logistics chain</p> <p>Stimulating employee creativity and making innovative activity part of the Company's strategic orientation</p> <p>Providing new infrastructure capacities in due time</p>	<p>Stability and business performance</p> <p>Indirect economic impacts</p> <p>Stakeholder engagement</p>	<p>Number of inspections and internal measures in land development</p> <p>Share of introduced improvements</p> <p>Strategic programme</p>	<p>No inspection and internal measures in land development</p> <p>40% of improvements introduced annually to the organizational unit</p> <p>Acquiring new storage areas</p> <p>Establishing additional berths</p> <p>Improving road access</p> <p>Establishing new track capacities</p>





	<p>Modernising equipment and dusting reducing systems (TST; EET)</p>	<p>Climatic factors and air quality</p>	<p>Concentration of particulate emissions up to 10 µm in the direction of Bertoki, Koper and Ankaran</p>	<p>Maintaining PM10 particulate emissions (up to 10 µm) in the entire port area under 30 µg/m³</p>
	<p>Establishing adequate control system over the entire aquatorium</p> <p>Alternative solutions for the handling of marine sediments</p>	<p>Quality of the sea, deepening of seabed and management of marine sediments</p> <p>Biodiversity</p>	<p>Number of sea-pollution instances outside the Port aquatorium</p>	<p>Preventing sea pollution entirely</p>
	<p>Upgrading waste management systems and equipment</p> <p>Reducing the impact of potentially contaminated precipitation water, process and waste water by upgrading treatment plants</p>	<p>Use of land and water, and water and the formation of waste water</p> <p>Waste management</p>	<p>Maintaining the share of waste collected separately</p>	<p>Maintaining the % of waste collected separately (excluding ship-generated waste) above 89%</p>
	<p>Respect for the principles of the rule of law and measures to prevent corruption and bribery, thereby strengthening our integrity and reputation</p>	<p>Respect for human rights</p> <p>Corporate integrity</p> <p>Reputation of the Port of Koper</p> <p>Operations compliance</p> <p>Operational transparency</p> <p>Ensuring customer privacy</p>	<p>Number of corruption cases</p>	<p>Maintaining the number of corruption cases at 0 and implementing corporate integrity training</p>

Table 1 - Luka Koper's sustainable development goals.

From all these goals and business activities dedicated to the development of sustainability of the Luka Koper port, some specific activities are going to be implemented through the SUPAIR project, taking in consideration that the company is strictly collaborating with some of the interested stakeholders.

For example, with the Municipality of Koper the company participates in the development of Koper as a tourist destination. In 2007 Luka Koper withdrew its port activities from the western part of the city, where the current passenger terminal is going to be developed. Slovenia has a geostrategic position of the port of Koper in the north of the Adriatic as a good starting position in order to become recognizable as a

destination for cruises in the Mediterranean region. Therefore, the Municipality of Koper and national entities, carry out various marketing activities to promote the competitive advantages of Koper and Slovenia in general. In particular, in recent years, Koper has a lot of interest and good feedback from shipping companies who are always keen to return to Koper.

More strictly related to the SUPAIR activities, Luka Koper works with higher education institutions and scientific institutions like for example:

- Institute Andrej Marušič: performs measurements of air and sea quality and maintains measuring devices. These collaborations are also visible while participating all together in various European projects;
- The Institute of Occupational Safety: performs noise measurements and identifies potential improvements in this field by means of model calculations;
- Institute for Construction: which is involved in exploring new, innovative approaches to the re-use of marine sediments;
- Marine Biology Station: carries out the monitoring of animal and plant species living in aquatic life and examining water flows within the pools;
- National Laboratory for Health, Environment and Food: supervises the quality of drinking water and wastewater;
- Faculty of Maritime Affairs and Transport: which is involved in the preparation of protection and rescue plans in the event of accidents at sea, studies the effects of the expansion of potential spills at sea, examines disaster management systems primarily through various simulations.

2.3 PORT OPERATIONS AND RELATION WITH PROJECT'S ACTIVITIES

2.3.1 Noise reduction

With its activity, the port represents a source of noise of a certain degree, which decreases with the distance from the source. Within the framework of the company's internal project "*Emission of noise in the port*", Luka Koper measures the noise level at three border points within the port and are presented on-line as its first industrial plant 24 hours a day on Luka Koper's portal for sustainable port development. The measurements are carried out by the Institute for Occupational Safety:

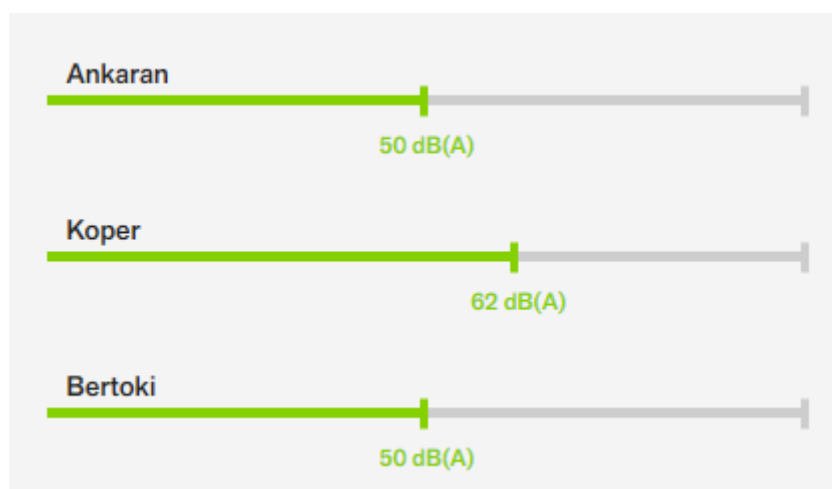


Figure 2 - Noise levels around port's area

The main sources of noise within the port were identified in the activities of transshipment of goods, the use of harbor mechanization and construction work, especially at the Container Terminal, and 24h transport of vehicles for the car terminal. Sensible noise sources are also caused by ships related to both these terminals.

The evaluation of the results of noise measurements is carried out by an authorized organization on the basis of the Regulation on limit values for noise indicators in the environment (Official Gazette of the Republic of Slovenia, No. 43/18). Evaluation of measurement results and annual noise reduction activities can be found on the Sustainability Report in the chapter People and Environment / Reports and Documents.

The indicated noise values are informative (indicative) and do not show the noise situation in front of the first residential buildings of Ankaran, Koper or Bertok, as the measuring devices are located in the port. Measuring all noise around the measuring device (noise due to the operation of the port, as well as the rest of the noise - noise of roads, human activities, sounds of nature, etc.). Wind and rain measurements do not show real values because the sounds of nature do not represent industrial noise. Anyway, studies and measurements made also in relation with SUPAIR activities, are showing origin of noise near the city:

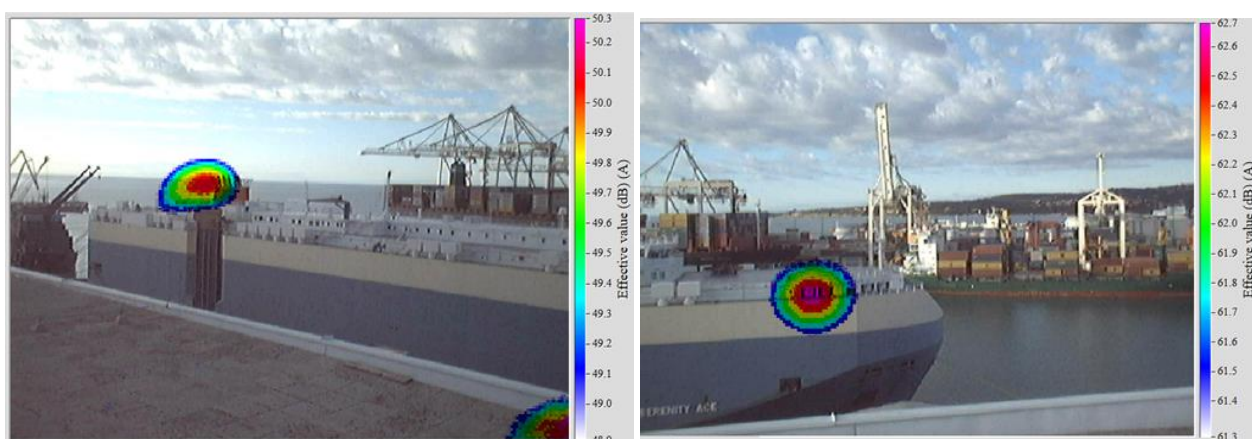


Figure 3 - Noise detection in port's area

In recent years, Luka Koper has implemented the following measures to reduce noise levels:

- The company carried over the noisier activities and performed them inside the port;
- The company produces annual noise maps, through which it's possible to monitor the improvements in this field;
- from the city center Luka Koper has withdrawn a part of the harbor activity and, in accordance with the interests of the local community, replaced it with the passenger terminal;
- the company is gradually introducing electrification of infrastructure on the ports of the coast;
- tacking of manipulative surfaces;
- Luka Koper has signed a Letter of Intent on the implementation of mitigation measures to reduce the impact of port activities on the environment, including the creation of a special fund through which Luka Koper will provide € 200.000,00 annually for financial assistance to residents of the old city centre most exposed to the impact of the port, the commitment of Luka Koper to gradually

release the area at the first and second berths, when it will acquire additional capacities or berths at other locations in the port, a resignation to the Municipality of Koper of the warehouse n.3 at the passenger terminal (formerly commodity reserves) for the social beneficial activities, the provision of assistance in the event of pollution at sea. The assistance consists in the creation of a fund managed by Luka Koper and the Municipality, with annual contributions dedicated to the citizens living near port's area, for the modernization of outdoor furniture (windows, doors, modern ventilation systems, buildings' isolation etc.) reducing the effect of noise and other pollutants on citizens' living quality.

In 2018 Luka Koper, d.d. invested more than € 9 million in noise reduction activities in the port.

2.3.2 Water in port's basins

With the daily preventive implementation of activities in the field of protection of the sea, Luka Koper keeps a clean sea in the harbor basins. In case of accidents or other extraordinary events, Luka Koper acts in accordance with the Plan of Protection and Rescue of the company for industrial accidents.

Since September 2008, on the basis of the concession contract, Luka Koper also provides services related to the prevention and elimination of the consequences of marine pollution. Luka Koper, d.d. signed a concession contract for performing port activities, management, development and regular maintenance of port infrastructure in the territory of the port cargo terminal with the Republic of Slovenia. The contract requires, inter alia, that Luka Koper, d.d. must ensure, in its own name and for its own account, the implementation of all measures to prevent and eliminate the consequences of marine pollution.

For the implementation of marine activities, at the group level Luka Koper established a marine unit with adequately trained personnel. Actual measurements can provide only part of the data that in the future are going to be collected and shared:

Water temperature	14,9 °C
Opacity	4,0 NTU
pH	N/A
Salinity	N/A
Oxygen	N/A

Table 2 - Water's quality in port's area

For the monitoring and interventions related to the water quality levels, the port of Koper is equipped with modern equipment for quality sea cleaning and Luka Koper currently has the following equipment to allow to act effectively and to eliminate the consequences of pollution at sea:

- ecological vessels Galeb and Kormoran, which are special boats of type Gabbiano;
- Vodomec, a working boat of the Omnia Nautica type intended for patrolling with rapid and effective intervention in the event of an emergency at sea;
- two vessels for removing waste from ships at anchorage;
- protective floating curtains, skimmers, brewers, dispensers and other related equipment.

Luka Koper carries out surveillance of the harbor aquifer with ecological vessels 24 hours a day.

2.3.3 Dust particles in the port

A third goal reached by Luka Koper, from the sustainability point of view is to continuously reduce the total dust in the port. At this regard, in the framework of the before mentioned project study "*Emissions of noise in the port*", Luka Koper, d.d. measures also the level of dust at two points within the port (Koper and Ankaran). Comparatively, Luka Koper also shows the results of the measurements of the device, which is located on Markovec and is managed by the Environmental Agency of the Republic of Slovenia. The average annual measured concentration of PM10 in the Port of Koper never exceeded the statutory limit value (40 $\mu\text{g} / \text{m}^3$). Company's goal is to keep the emission of particles up to 10 μm in the entire port region below 30 $\mu\text{g} / \text{m}^3$:



Figure 4 - Levels of dust particles in port's area

The comparison of port's results with the results of measurements in other Slovenian cities shows that the measured values in the port area are lower than in many other cities. Measurements of average annual concentrations of PM10 in Slovenia (Ljubljana, Maribor, Celje, Trbovlje) have been shown to range between 23 $\mu\text{g} / \text{m}^3$ and 46 $\mu\text{g} / \text{m}^3$ (Source: Environmental Agency of the Republic of Slovenia). The evaluation of the measurement results in the Port of Koper is carried out by authorized organizations.

One of the biggest emitters of dust pollution in the port of Koper is the bulk cargo terminal, where coal is stored and represents an issue when strong winds blow in the port. Luka Koper is constantly striving to reduce discharges into the atmosphere generated by port activities. That's why it successfully reduces the dust with the technology of applying paper sludge to the landfill of coal and iron ore, which was introduced years ago. Paper sludge forms a crust that prevents dust from being removed. This system proved to be the most efficient, even with winds of over 100 km/h.

In addition to this, more activities were completed in Luka Koper, for the reduction of different types of pollution in port's area. Among other things the most relevant are:

- at the container terminal on 7 trailers terminal tugs were installed rubber buffers;
- replaced all audio signaling devices on STS and RTG lifts with appliances, which are less disturbing to the environment;
- Diesel engines were replaced on 5 transponders aggregates with less noise;
- arranged electrification and provided 7 electric cranes on wheels (RTG) and 3 electrical cranes (RMG) on railway tracks.

From the operative point of view, Luka Koper will shift the noisier vessels to other berths that are not in the vicinity of the city, whenever possible. The company will also position noisy vessels so that their exhaust and/or ventilation systems are not pointing at the city centre when technically feasible. There are also going to be introduced several other measures in parallel with SUPAIR's measurements analysis.

Last but not the least, best practices accumulated from the collaboration of Luka Koper in the NEPTUNES association of ports, allows the company to produce its own list of interventions on specific issues that are detected as potentially urgent and, from the environmental point of view, also useful to be solved:

Typology	Brief description	Estimations	Costs	Lessons learned
Machinery	<p>Noise reduction of the loudest machinery on board a ship is the most important step to reducing noise emission from ships into the environment.</p> <p>Several machine elements (such as funnels and fans) directly emit noise into the environment (airborne noise) while others cause excitations of structural elements which subsequently emit noise into the environment (structure-borne noise), for example, vibrations from the auxiliary engine(s) in operation that are transmitted into the ship's hull.</p> <p>One of the most dominant noise sources in operation while berthed is the exhaust funnel outlet of the auxiliary engine(s), the ventilation openings (e.g. for the engine room, the air-conditioning of passenger rooms, cooling units and the cargo hold) and the pumps on deck (tankers). Therefore, noise mitigation measures should focus first on reducing the noise emitted from these noise sources.</p>	<p>The reductions of noise cannot be specified in a general way for such mitigating measures.</p> <p>Noise reduction of the emitted noise into the environment ranges from a few decibels (e.g. by retrofitting fans) to 10-20 dB (well-designed silencer in the exhaust system of an auxiliary engine) up to a complete reduction of the emitted noise (proper installation of pumps inside the ship's hull).</p>	<p>The costs cannot be specified in a general way for such mitigation measures. The expected costs are of safety category A/B when designing new machinery.</p> <p>When retrofitting the ship, the expected costs can range from safety category A-C.</p>	<p>Noise mitigation relating to the machinery should preferably be incorporated in the design and construction phase of new ships in consultation with acoustic specialists.</p> <p>Communication between different stakeholders is important. When ordering a new ship, for example, shipping companies could agree with shipbuilders on maximum sound power levels for various machineries.</p> <p>Some of the above-mentioned mitigation measures are already state of the art in other branches of industry. Furthermore, there are regulations to reduce the noise on ships, such as the codes on noise levels from IMO, which aim to reduce the noise disturbance for the crew.</p> <p>Stakeholders should therefore draw on existing experiences with building similar machinery and/or noise mitigation measures for operation on ships or for operation in other industrial sectors, such as petrochemical and power plant construction.</p>

<p>Silencers</p>	<p>Silencers (or mufflers) are equipment to mitigate noise emissions close to the source. They are built to reduce sound propagation in ducts, pipes and openings while permitting flow.</p> <p>The most critical applications of silencers for ships are:</p> <ol style="list-style-type: none"> 1 Exhaust silencers integrated into the exhaust ducts of combustion engines (propulsion and auxiliary engines) to reduce the exhaust noise at the funnel exhaust outlet. 2 Silencers in air ducts to reduce the intake noise of engines or noise from the air inlets and outlets. Silencers can be categorised according to the operating principle or the case of application. 	<p>The noise reduction of sound pressure inside a silencer cannot be specified in a simple way, since it depends on the frequency characteristics of the source and of the silencer itself (which depends on the type and the precise layout of the silencer, space, etc.). The mitigation of noise sources with significantly high sound energy in the low frequency range (e.g. below 200 Hz) requires more effort in terms of silencer dimension (especially volume and length of the silencer).</p> <p>Noise reductions of a few decibels to over 40 dB can be achieved, depending on the implementation.</p>	<p>The overall cost of installing a silencer on a ship comprises the cost of constructing the silencer itself and the cost of on-board integration. Construction cost depends on the engineering and production effort. Both can be minimized, if commercial off-the-shelf solutions for a specific problem are available. Integration and construction costs are related to the complexity of the installation situation. Furthermore, a subsequent implementation on existing ships will be much more expensive than implementation in the design and/or construction phase of a new ship. For example, a subsequent implementation could also require a modification or even reconstruction of the surroundings. A subsequent construction may sometimes not even be possible to meet all requirements for the implementation. It is important to find well-balanced solutions for different noise</p>	<p>Adequate dimensioning of the silencer for the respective application is essential. A wrongly designed silencer will not mitigate the emitted noise sufficiently. There are several companies involved in the design and dimensioning of silencers which should be consulted when constructing a silencer. The acoustic quantities (e.g. required transmission loss and/or insertion loss) should be agreed between different stakeholders as early as possible to ensure the intended requirements for noise mitigation.</p>
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			sources to avoid both over-dimensioned and under-dimensioned silencers. The overall cost of implementing a silencer can therefore vary from category A to C.	
External power supply	<p>When a ship is berthed, there are several electrically-driven devices on board a ship in operation (e.g. fans, reefer container, air conditioning and pumps). In most cases, the electric power is provided by one or more auxiliary engines on board. The noise emission of the auxiliary engines(s), especially their funnel outlet(s), represents one of the main noise sources responsible for the overall noise emission of a ship.</p> <p>Besides mitigation measures on the auxiliary engine(s) itself, see leaflet Machinery and leaflet Silencers, noise mitigation could be achieved by providing an alternative power supply (external power supply). Using an external power supply, ships can switch off their own auxiliary engine(s) when berthed.</p> <p>Currently, there are several concepts and implementations of external power supplies. In further developments of external power suppliers, noise mitigation measures</p>	<p>If noise mitigation measures are effectively planned and installed, the use of external power supplies can have enormously positive effects on the mitigation of noise, especially for exhaust noise. The overall emitted sound power level of a ship at berth could be reduced by up to 5 to 10 dB by replacing the use of auxiliary engine(s) with external power suppliers. See also paragraph conditions.</p> <p>Relevant noise sources from the external power suppliers (e.g. using shore power) could also be shifted to a less sensitive area/away from residents (e.g. by using shore power facilities far away from residents or smart placing of the PowerPac in a location turned away from residents).</p>	<p>The costs of implementing an external power supply system in a port are very high (Category C). The savings in the long term are very small and are merely the result of better efficiency of new power suppliers. One of the main challenges is also the conversion of cycles (60 Hz/50 Hz voltage). Because ships and/or ports can run on different cycles, conversion is essential.</p> <p>The costs of implementing a conversion system (transformer) are also very high (Category C).</p>	<p>Although the aim of external power supply is currently the reduction of air pollution, noise mitigation measures should preferably be part of the design and construction phase of external power supplies.</p> <p>Enough space for implementing a silencer in the exhaust system of the external power supplier should be provided.</p> <p>Communication between different stakeholders is important, for example communication between the port and the shipping companies to implement a unique or standard interface for connection between the external power supplier and the internal powerline of a ship.</p>

				possibility of sound insulation to mitigate the noise disturbance must therefore be checked for each individual case and port before any action is taken.
Urban planning	In the design of the district or buildings, measures can be taken to mitigate or avoid noise, annoyance and sleep disturbance in new residential districts.	Most of the urban planning measures are aimed at preventing noise and annoyance in the planned districts either through the configuration of the district or by means of special facades or a well-thought-out design of the layout. It is rather complicated to predict reductions that can be achieved when planning a new district or housing block. By integrating the noise measures, noise will be avoided in order to comply with a limit value set by the government, annoyance will be reduced and fewer complaints will be reported. To a certain extent, it also avoids annoyance and/or sleep disturbance. In the case of zoning and screening, no further noise reductions are required if the zone is set at the preferred limit value and the building mass provides sufficient shielding. When	<p>The costs of zoning are mainly administrative costs and depend on the size of the area enclosed by the zone.</p> <p>The initial costs could be quite high (category C) while the costs of maintaining and monitoring the zone are moderate (category B). The costs of (internal) screening and choosing a different orientation or layout are minimal because this is performed during the design phase of the district and the building.</p> <p>The cost of a double facade depends on the dimensions of the building.</p>	<p>With regard to the non-complaint declaration, it has been found that people cannot imagine living in an environment with noise levels above a certain level. After living there for a while or after a family expansion (children), parents tend to use the public space more and become aware of the noise levels. Most people do not know what for example 60 dB LDEN is or its impact in the long term. One pitfall regarding the non-complaint declaration might be a conflict with national legislation.</p> <p>A second pitfall when developing these measures is that architects and urban planners will not cooperate because important changing visual aspects in planning by adding visible insulation and changing orientation (disregarding wind and sunshine) are unfavorable.</p>

		applying double or innovative facades, reductions of 20-40 dB can be achieved inside. Adaptive facades can give an extra reduction of 10-15 dB.		
Awareness	Awareness of how operational behavior contributes to the noise situation is the first step towards a sense of responsibility to contribute to a quieter situation through behavioral change.	Noise reduction due to behavioral change, in contrast to physical measures such as silencers and noise barriers, is more difficult to express in exact numbers (decibels). However, there will certainly be less noise and hindrance if people are willing to work quietly. People living or working in the neighborhood often recognize immediately whether employees are working in a responsible, sustainable and quiet way or not. This also applies to the machines and equipment that are operated.	There are on-off costs and recurring costs that depend on the number of ships, companies and terminals involved and also whether external (medical) acoustic and/or social expertise are consulted. Costs classification: A (one-off costs to provide information materials). Recurring costs cannot be estimated and may vary depending on many factors (size enterprise, number of stakeholders, etc.).	As good intentions to work less noisily may fade over time, it is recommended that the process of behavioral change is actively monitored and, if necessary, adjusted.
Complaint management	Complaint management is important to achieve and retain a good overview about the perception, support and acceptance among residents, living in the sphere of influence and experiencing the adverse effects of exploiting the port. It can be used as a tool for policy making and maybe more importantly as an instrument to re-enforce support and acceptance among	Registering complaints does not reduce noise, annoyance or sleep disturbance. Only when the complainant registers a complaint on the phone is it possible for the CRS operator to provide information about the noise, the duration and what the competent body is planning to do. Receiving	The costs of complaint management are the one-off costs involved in designing and building a CRS database with application software and recurring costs (mainly staff, maintenance and service costs of the CSR application and the depreciation costs of the	For complainants, it is hard to distinguish whether the source belongs to the port or whether it is ship-generated noise. The noise is noticed in or around the dwelling and complainants do not usually perform research to find the cause. By completing all the fields of the template or by requesting more information from the complainant, it becomes easier to

	<p>residents living in the vicinity of the port. To achieve this, an ideal complaint management system could be (re)developed or adopted that should include the following elements.</p>	<p>information reduces the annoyance and worries.</p>	<p>hardware and software). The one-off costs and the recurring costs are estimated to belong to category A when choosing a tailor-made CRS. It is also possible to use an Excel application. Then the one-off costs are estimated in category B.</p>	<p>localize the noise source when action is taken by an inspector or acoustician.</p> <p>When offering to the residents the opportunity to submit their complaints by e-mail or social media (e.g. Twitter), the information is often not complete, and the CRS operator has to call the complainant to obtain more information. This is inefficient and costly because of the man hours involved.</p> <p>When analyzing the complaint data stored, it is often noticed that more than 50% of the complaints are submitted by 10-20 percent of the complainants (hockey stick phenomenon). This might be due to people's noise sensitivity (about 15% of people are more sensitive to noise than others) or persistent complainants who have opposite interests.</p>
Organisation planning	<p>Noise and annoyance can be avoided, mitigated or reduced by organizational or planning measures. The following organizational or planning measures can be taken:</p> <ul style="list-style-type: none"> - Berthing programme that ensures that the noisiest ships berth at the farthest locations. - Prioritization scheme whereby less noisy ships will be processed faster, earlier or will be given better conditions in 	<p>Berthing ships further away means less noise. The general principle that can be used for the attenuation (Δ) is $\Delta = 20 \log R1/R2$. R1 is the shorter distance and R2 the longer distance. Doubling the distance means approximately 6 dB reduction in the noise.</p>	<p>With advanced planning to berth ships further away or with a port instead of starboard orientation, the costs are negligible. Turning or re-allocating the ship involve rather higher costs (category B/C). The re-allocation will also increase the port fee (ship spends more</p>	<p>Changing the orientation is not always possible (due to location of the cargo to be loaded or unloaded and the cranes) or does not reduce noise because of (almost) omnidirectional radiation (360°) of the source.</p>

	<p>the port.</p> <ul style="list-style-type: none"> - The orientation of the ship may also be included in the berthing programme. This means turning the helm from port to starboard or vice versa, for example. This can be planned in advance based on the known noise emission of the ship or in response to complaints received. <p>Ships at berth must use external or on-shore equipment (EPS) for supplying power or unloading activities. Ships must use Shore-Tension technology or magnetic mooring facilities available in the port.</p> <p>If many complaints are received, an already moored ship will be relocated further away from the sensitive buildings. This may be a one-off response or a permanent arrangement. No admittance for noisy ships (no bookings). This is based on previous calls or noise label or any other register containing information about noise.</p>		<p>time in the port). The cost of using onshore equipment like Shore-Tension or other equipment could also be very high. When using EPS, costs are related to the instalment of the EPS. Some conversions of the ship due to the cycles (60-50 Hz) and the voltage may also be required (category C++).</p>	
Cargo handling	<p>The process of cargo handling itself is not taken into account for the noise emissions of a ship at berth. Nevertheless, the emitted noise from a ship during cargo handling can be perceived as disturbing by residents living near the port area. This leaflet therefore</p>	<p>Noise reductions cannot be specified in a general way for such mitigating measures and may vary depending on the applied measure.</p>	<p>Costs depend on variable and specific types of costs which are part of ports' business strategies and are not available for this work.</p>	<p>Especially when the berth location is situated close to residents, noise mitigation measures are essential to ensure quiet cargo handling. Due to the area of conflict between residents and ports, close cooperation and communication between different</p>

	provides a brief description of the expected noise sources and general suggestions for possible noise mitigation measures during cargo handling in ports. Cargo handling can mainly be described in terms of external operation (using external equipment) and internal operation (using internal equipment on the ship itself).			stakeholders are essential.
Manoeuvring	In most ports, incoming and outgoing ships need to perform a berthing maneuver to reach or leave the berth location. The process of maneuvering itself is not considered as noise emission of a ship at berth. Nevertheless, the emitted noise from a ship during maneuvering may be perceived as disturbing by residents living near the port area due to the specific character of the noise.	The reductions of noise cannot be specified in a general way for such mitigating measures. Noise reduction of the emitted noise into the environment ranges from a few decibels (e.g. by retrofitting fans) to 10-20 dB (e.g. well-designed silencer in the exhaust system of the main engine and/or support by tugs).	Similarly, the costs cannot be specified in a general way for such mitigation measures. The expected costs are in category A/B when designing new machinery. When retrofitting the ship, the expected costs can range from category A-C. The use of tugs will probably involve extra costs for the port compared with using only the main engine. Furthermore, the purchase of shore-tension systems and winches, creates extra costs for the port. The use of noise mitigated thrusters and resilient mounted thrusters will probably be disproportionately expensive.	If complaints by residents in response to maneuvering are received, noise mitigation for the maneuvering will be taken into account. Besides technical measures to reduce noise sources on board, careful instruction of the crew, especially the captain, is essential. In this regard, maneuvering can be performed faster and with careful use of main propeller and side thrusters. Furthermore, for known noisy ships, a tugboat can be used to support the maneuvering.
Non-acoustic factors	Non-acoustic factors are factors that affect and reduce annoyance in people. Research has	Use of non-acoustic factors does not reduce noise, it only affects the	There are one-off costs and recurring costs. One-off costs are	There is no guarantee that compensation works in the long term.

	found that the some non-acoustic factors could play a role in perception in groups of people.	perception and/or acceptance by people. The reduction in the number of annoyed people cannot be reported because this varies in each situation.	related to offering initial compensation. Recurring costs have not been estimated and may vary depending on many factors (e.g. size of the port, district, noise levels) and are often internalized in the communication strategy (framing) or in the CSR strategy. The contextual aspects are the responsibility of the local government or project developer that initiates the new or renewed district. The extra costs should be included in the project costs.	
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Table 3 - Best practices and list of possible interventions in the Port of Koper

3. Stakeholder consultation

With its activity, the Port of Koper affects various groups of people who, in turn, themselves affect the port's operation. Stakeholders of the Port of Koper are defined and recognized in the Policy of Managing Luka Koper, d. d., and in the framework of individual business processes of the Company.

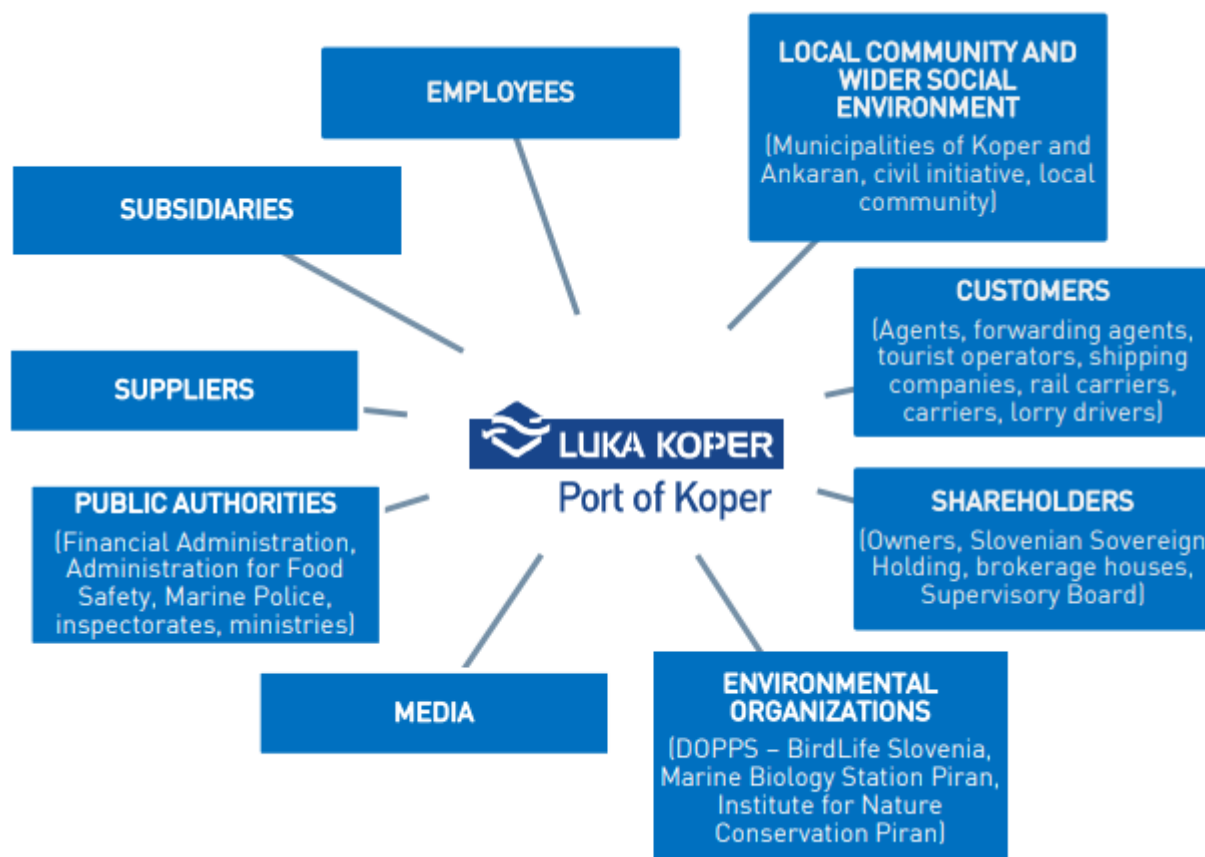


Figure 5 - Luka Koper's target groups.

Shareholders can exercise their management rights at the General Meeting of Shareholders. Competencies of the General Meeting and other directly related matters are determined in the Companies Act, Articles of Association of the company, and Rules of Procedure on the Work of the General Meeting of Shareholders.

Customers dictate constant adaptation and introduction of changes and improvements in the Company's operation. Customer satisfaction is the basic guideline of all employees. From the first contact with customers and performing services for them to settling any potential claims, Luka Koper has to be aware that the very customer satisfaction provides its efforts with meaning and serves as the basis for implementing the vision and mission of the Port of Koper. Satisfaction of Luka Koper customers is monitored regularly. Customers are endured top quality services, quick response to the demand and effective communication and other necessary support. The existing model of governing the port serves as the basis for equal treatment of all customers.

Port community participates in changing the functioning of the port system as a whole. Port community is an informal association of all the interested parties whose business activity and purposes are directly related to provision of port services. It includes customers - forwarding agencies, agents and carriers joining in professional organizations - as well as representatives of controlling firms and inspection authorities, and state agencies, all of them forming expectations towards the Port of Koper, aiming at operations being as coordinated as possible at the entry or exit point, which is the actual position of the port area in the entire logistic chain. The Port of Koper responds to mentioned demands by coordinating them and communicating with the interested stakeholders.

The Company's performance and the reputation of the Port of Koper are also related to the work of suppliers: efforts of all business partners being involved in the operation of the port system and in achieving its operational goals as suppliers of required products or services are therefore highly respected and valued.

Employees are encouraged to excellent performance and are awarded if successful. The partnership employer-employee culture is built on affiliation, cooperation, creativity, respect and responsibility of each individual. A great deal of attention is devoted to internal communication as the foundation of a comprehensive communication network. Employees are informed about news, internal acts and other information by e-mails and notice board notifications, the Port Bulletin monthly internal paper and via intranet.

Commitment to sustainable development is one of the fundamental strategic guidelines. It focuses particularly on establishing and maintaining partnerships with the local community and wider social environment. This at the same time ensures successful development of employees and strong support of the social environment, while also building on the care for the natural environment. Sponsorship and donations are intended to support education, sports, culture and humanitarian projects. Once a year, "the port opens its door widely" on the occasion of the Port Day for visitors from the local and wider environment to view the port, piers, lifts, devices, as well as witness throughput and other activities.

Public authorities: The Government is aware of the immense importance of the Port of Koper as the only Slovenian port to the economy as a whole. In 2018, the Company was granted the concession for the provision of port services, management, development and regular maintenance of port infrastructure in the area of the port of Koper. Essential elements of the concession contract are:

- Duration of the concession contract,
- Determination of the method to calculate the concession fee,
- Agreement between the contracting parties on the method of investing in port infrastructure,
- Rules of governance, management and operation of the port facility,
- Maintenance of port openness,
- Rights and obligations of contracting parties upon suspension or termination of the concession relationship.

The duration of the concession is 35 years, as laid down in the Maritime Code. The agreed concession fee amounts to 3.5 percent of the Company's operating revenues reduced by the amount of the fees charged. With the payment of the concession fee, the Company being the concession holder also pays the rent and building title, while being exempt from the payment of a fee for the use of the port. The concession fee also includes the water right, water charges and other duties related to the use of the sea. Investments in port

infrastructure are performed by the concession holder in agreement with the Republic of Slovenia and on the basis of a valid five-year port development programme. Concession provider and holder have divided among themselves port management, governance and operation, and agreed on ways of coordinated action to attain the concession objectives in the interests of both parties. It is a commitment and objective of both contracting parties to ensure port openness. It is a commitment to provide services to anybody interested and meeting the conditions in accordance with the principles of the European acquis. The Company's objective is for the Port of Koper to become the primary and best port for the countries of Eastern and Central Europe.

The media: The public limited company is open to the general public. The media are responded to their questions in due time and promptly informed of the company's performance and innovations. Information is also published on the company's website www.luka-kp.si/eng/ and on its sustainability portal www.zivetispristaniscem.si. The media also receive press releases, and invitations to attend press conferences and important business events and visits.

To resume the role of the port stakeholder for SUPAIR purposes, see the table below:

STAKEHOLDER CATEGORY (i.e Privates: Shipper; Logistics operator; Forwarders; Carrier (road/rail/shipping); Terminal operator i.e. Public: Regional authority, Transport agency, etc.)	RELEVANT STAKEHOLDERS (Name of the Organization)	INVOLVED IN THE FOCUS GROUP (Yes, or not)	Contribution of the Sustainable and Low-carbon Port	
			NEEDS (list 2/3 of the main relevant needs)	INVOLVEMENT IMPACT (Involvement: indicate if easy, medium, difficult Impact on the sector: indicate if small, medium, large)
Shipper	MSC Neptune Lines	Yes	<ul style="list-style-type: none"> - Quicker manipulation of cargo; - Timely completion of operations; - No additional costs. 	Involvement: difficult Impact: large
Forwarders	TPG logistika Intereuropa Feršped	Yes	<ul style="list-style-type: none"> - Quicker manipulation of cargo; - Timely delivery or acceptance; - No additional costs. 	Involvement: easy Impact: large
Municipality	Koper Ankaran	Yes	<ul style="list-style-type: none"> - Availability of Management Board; - Cost contribution for pollution reduction; - More collaboration and inclusion in spatial planning. 	Involvement: easy Impact: large
Medias	RTVSLO Primorske novice	Yes	<ul style="list-style-type: none"> - Updated info; - Live info; - Availability of Management Board 	Involvement: easy Impact: small
National agency	Customs	No	<ul style="list-style-type: none"> - Digitalization of data; - Traceability of data; - 24h working and availability 	Involvement: easy Impact: large
National agency	Phytosanitary inspection	No	<ul style="list-style-type: none"> - Digitalization of data; - Traceability of data; - 24h working and 	Involvement: difficult Impact: small

Table 4 - Collaboration of Luka Koper, d.d. with stakeholders

4. Evaluation framework

The environmental management system has been designed in a way that environmental aspects are reviewed and evaluated as part of the annual planning process. Environmental Aspects are elements of activities, products and services with significant impacts on the environment. The criteria for evaluating the significance of environmental aspects include year-on-year progress, compliance with the law and compliance with the adopted internal standards, cost increase, and public opinion. To indicate significance in the evaluation process the color scale is used (red, yellow, green). An environmental aspect is considered *Significant* when evaluating any of its criteria, at least three of them are critical. In the analysis of environmental aspects, all our activities are considered (in terms of indirect and direct impacts on the environment). The table n.5 shows the environmental aspects evaluated as significant in 2017. Generation of sanitary wastewater is no longer classified as a significant environmental aspect after the sanitary waste treatment system was modernized. The Environmental Report also discusses other identified environmental issues aspects, with the aim of providing a complete overview of Company's environmental activity.

For environmental aspects evaluated as significant, annual quantifiable targets are set and improvement programs are developed to facilitate the process of meeting the targets and make it more efficient. The implementation of improvement programs is reviewed annually and reported on in the Environmental report. The adequacy of the established environmental management system is also examined and evaluated as part of regular internal reviews and management reviews.

In its development, Luka Koper aims to introduce, to the largest possible extent, modern sustainable solutions that are significant for both the local community and the society at large scale. Strategic orientations for the development of Luka Koper, d. d. in terms of environmental management to 2030 have been set out in its official Plans.

In order to reduce the impacts of the identified environmental aspects, the company organized the traditional environmental workshop of Luka Koper to decide on annual activities (improvement programmes) and review the progress made towards achieving the environmental targets from the list:

Environmental aspects evaluated as significant	
WATER CONSUMPTION / WASTEWATER / SEA	<ul style="list-style-type: none"> • Drinking water consumption • Marine pollution from the handling of coal dust and iron ore • Generation of wastewater in livestock truck washing
AIR EMISSIONS	<ul style="list-style-type: none"> • Dust emissions/immissions from services
ENERGY / INTERNAL TRANSPORT	<ul style="list-style-type: none"> • Internal transport powered by diesel engines • Electricity and fuel consumption
NOISE / ODOUR	<ul style="list-style-type: none"> • Generation of noise in the port • Noise emissions from freight and passenger ships
OTHER ENVIRONMENTAL ASPECTS	<ul style="list-style-type: none"> • Deepening of seabed and disposal of marine sediments

Table 5 - Significant environmental aspects considered in Luka Koper, d.d.

In this respect, the key natural environmental targets are the following:

- ✓ To pass the audit of compliance with the GRI standards and the EMAS directive,
- ✓ To reduce total dust emissions on all ten port locations to 250 mg/m²day, and limit the number of deviations to no more than 5 of the 120 measurements taken throughout the year,
- ✓ To maintain PM₁₀ concentrations (particles up to 10 µm) across the entire area of the port below 30 µg/m³ (in the direction of Ankaran, Koper and Bertoki),
- ✓ To maintain the share of separately collected waste, excluding waste from vessels, above 89%,
- ✓ To reduce the night-time noise level in the direction of Koper to 48 dBA,
- ✓ To maintain the noise level in front of the closest buildings outside the port at 58 dB during the day and 53 dB in the evening, despite the growing throughput and expansion of the port,
- ✓ To modernize the drainage system on the quayside of the bulk cargo terminal, modernize the wastewater treatment plants on the animal terminal, and replace some of the oil interceptors,
- ✓ To reduce the number of required measures (inspections and internal measures) in case of developments to zero,
- ✓ To prevent any spread of pollution from the port to the sea outside the port aquatorium,
- ✓ To maintain specific consumption of energy sources at 2015 levels despite the growing throughput and expansion of port capacities: fuel at 0.25 l/t, electricity at 1.17 kWh/t, and drinking water at 6.4 l/t.

A type of pollution that for Luka Koper is not included in project's Application Form for SUPAIR is also the light pollution, for which great efforts are spent. To address light pollution, all lights have been made to comply with legal provisions in the field of light pollution. Results of the measurements taken on the devices causing air emissions indicate compliance with the law and with the obtained environmental permit. PM₁₀ and PM_{2.5} concentrations in the area of the port, as well as the number of exceedances, are below the limit values stipulated by law. The measured emissions of combustion plants are compliant with legal requirements.

The noise level in the port is compliant with the provisions of the law for industrial areas. Meanwhile, noise measurement in front of the closest buildings in the city of Koper has shown that evening noise exceeds limit values by 4 dB(A), night-time noise at a distance stipulated by the environmental permit by 2 dB(A), and average noise by 5 dB(A). Day-time noise in front of the closest buildings in the town of Koper is compliant with the limit values.

In front of the closest buildings in the direction of Ankaran and Bertoki, no noise limit levels were exceeded. Analyses of industrial wastewater and municipal wastewater from treatment plants have shown no non-compliance with legal and environmental requirements. Luka Koper has a valid environmental permit as a high-risk facility, an environmental permit for noise emissions, an environmental permit for air emissions, wastewater emissions, and an environmental permit for the warehousing (throughput) of some categories of waste (scrap iron, paper, plastics, mill scale). In 2017, there was no throughput of these categories of waste.

Anyway, to face recent critics, Luka Koper has intervened on some areas, reducing the level of pollution and obtaining concrete, measurable results. They will be implemented, and measurements upgraded after the SUPAIR's activities are completed. Some of the interventions made independently from the SUPAIR project were sustained to be in compliance with internal requirements, like for example:

- port's target for total dust was achieved, with the average annual concentration falling even 11% below the 2016 level;
- the set target for waste sorting was exceeded as usually in last years;
- the targets for specific electricity consumption for the port's activity, as well as for fossil fuel and drinking water consumption were met;
- the sea water protection system is being maintained and upgraded in a way to help Luka Koper to meet the set target;
- the internal target for night-time noise was partially met, but not with average annual nighttime noise caused by the port calculated to be 50 dB(A). Meanwhile, the day-time noise level targets towards Koper were achieved;
- the wastewater treatment system on the animal terminal has not yet been modernized but, as part of the efforts to reduce the impact of potentially contaminated stormwater at the European energy terminal, one third of the quayside was remedied.

An important role in the development of activities related to the sustainability plan, plays also the communication process out of the company. Considering the results of the potential opinion poll, Luka Koper, d.d. believes that the company should continue to work closely with local communities and strengthen the interaction with and gain trust of the local population. In the course of the years, Luka Koper had visits from the local communities of Bertoki and Koper, with whom were discussed the company's environmental issues and development. Together with the Municipality of Koper, Luka Koper, d.d. set up a working group to address the unresolved environmental and development issues. The same proposal was addressed to the Municipality of Ankaran, but so far there has been no reply.

In addition to this, Luka Koper has organized the Open Port Day, which attracted 3,000 visitors. It served as an opportunity to show how the port works and which are the needs (spatial, operational and equipment) to accomplish all the targets. For what regards social networks, there was a total page likes on Luka Koper's Facebook profile of around 6,000 units; there was opened a profile on Instagram to post interesting photos from the port. In cooperation with the regional newspaper Primorske novice the company runs a monthly article or feature story in the Istra freesheet on the current issues concerning the port. In the field of sponsorships and donations, Luka Koper has developed even closer relationships with the beneficiaries in order to enhance the visibility of Luka Koper as a social one responsible company.

At the end of this chapter an "AS IS" and a "TO BE" scenario must be analyzed, in order to allow future analysis, studies and measurements to be comparable and reliable.

By performing constant monitoring and by strengthening the criteria for operational activities or vessels' berthing, the results can be visible within few years. It would mean also a great contribution in terms of costs and in terms of efforts from the terminals. Anyway, summing all the variables and taking in account all the suggestions, comments and best practices accumulated through experiences in other areas, Luka Koper, d.d. provided the following table regarding a possible SWOT analysis:

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Improved business results, due to the fact that sustainable solutions might lead to greater visibility of the port of Koper in logistics. • customized and high-quality customer satisfaction services. • Increasing visibility of the transport route through Koper (quality and reliability of services) and the company's trademark. • Management of the coastal / ADRION territory and distribution network of export of services. • Successful (efficient and productive) and cleaner operations with stable financial position / good results through years. • Independent investment decisions by additional capacity according to the actual needs of stakeholders (direct contact with the involved parts). • Cleaner area for employees as well as for citizens and tourists. • Harder control on the area with defined plans for potential interventions in the area, saving money in case of accidents. 	<ul style="list-style-type: none"> • High degree of dependence on external hard-to-predict factors and other actors in the port's area. • Lack of space or reliable freight capacities at port's terminals in addition to the dependence on an outdated one-track line. • The growth of market potentials is usually accompanied by new standards' requirements which leads to the need for additional capacities and equipment for manipulations: warehouses, berths, connection, reachstackers. • The need for large scale investments, which means complex projects (more time and additional capacities - project management). • Linking assets to equipment which causes difficult task diversion. • Frequent changes of employees and management. • Regional administration could be too strict and can lead to loss of opportunities because of extreme bureaucracy.
OPPORTUNITIES	THREATS
<ul style="list-style-type: none"> • Geographical position considering potentially involved and evolving markets. • Geographical position along the core TEN-T corridors. • Increased overseas international trade in goods relative to the Koper gravity hinterland. • Co-operation with neighbouring ports to enhance visibility and hence the common market position of the ADRION region. • Modernization of equipment used for environmental purposes. • Strengthening of relationships with entities and institutions with which the collaboration is needed for SUPAIR purposes. 	<ul style="list-style-type: none"> • Poor institutional support for development (by ministries and the local community) including potential political interests • Insufficient operative infrastructure for the movement of "noisy" works in different areas accompanied by a lack of modernization of equipment. • Ensuring competitive transport routes to port's markets in the ADRION area. • Being a smaller port (when compared with northern European giants), the prices cannot be competitive because of economies of scale allowed in bigger ports. • Distance from larger markets. • Unpredictability of the macroeconomic and political situation in the world. • New environmental, security and institutional requirements, which might require further financial efforts and technological improvements.

Table 6 - SWOT analysis

5. Action plan solutions design

The actions planned in the port of Koper, during the development of project's activities, were agreed with the stakeholders in order to obtain useful information for a deeper analysis of the current scenario and for the upgrade of existing measurement methodologies. The collaboration with specialized institutes and the Faculty of Maritime Studies and Transport of the University of Ljubljana helped for the identification of proper measures to be adopted, in order to improve the sustainability of the port, located in the immediate vicinity of the city centre.

5.1 PORT'S ROLE FOR LOCAL SUSTAINABILITY IN KOPER

What came out during the Focus Group held in Koper at the beginning of April 2018 was that the increase of volumes of freights in the port, has a proportional:

- increase of traffic in and around the port,
- increase of machinery and equipment used,
- increase of risk of water and air pollution,
- increase of noise in the area where the port interacts with the citizens.

The port of Koper has always felt responsible in terms of sustainability and security in port's area, in and out of the port. Being more efficient and reducing pollution at different levels means also to have better operational efficiency as well as internal organization in terms of administration and staff employed. It all has also positive financial consequences:

- for the port: with the reduction of consumptions, reduction of penalties, reduction of disputes and national or EU contributions in case of innovative approaches and solutions;
- for both the municipalities linked with the port: obtaining subsidies per capita from the port and benefiting from the conversion of the area near the Koper's city centre into a touristic area, where even more cruise vessels are calling for visits. It has also indirect positive financial consequences, considering the fact that more tourists, and visitors in general, in the area produces positive effects on the local economy.

In addition to this, the port of Koper agreed also to intervene on its operational activities but first are needed specific analyses and studies, in order to understand which are the obstacles, the risks and the effects produced by specific measures proposed. Best practices learned and know-how shared in general by ports participating in associations and working groups in which also Luka Koper is included, can help finding useful solutions for both, the port and the Municipalities.

The strategies taken in consideration for the port's Action Plans are focusing on different periods:

- 2021-2025 as a short-term period, in which investments for critical interventions are considered;
- 2021-2030 a medium-term period, in which the development of port's infrastructure and better internal traffic distribution is planned in line with the National Spatial Plan, in which also infrastructural national and regional improvements are planned (the main one is the construction of the second railway track from Koper to Divača);

- 2021-2040 as a long-term period, in which the National Spatial Plan and port's territorial extension are complement each other and the extension of piers I and II with the construction of Pier III are all part of the strategic development, in line with national directives. These are necessary also considering the fact that the port of Koper is the only Slovenian port and has multiplicative effects on the whole Slovenian economy.

What has to be highlighted while considering the project activities developed through SUPAIR is that even if the above mentioned upgrades, implementations and improvements are always focusing on the economic aspects of the potential changes, they always include sustainability and security as additional criteria to be included in the cost-benefit analyses and potential improvements for the employees.

The port of Koper has always been sensitive to this argument and the proofs are found in many initiatives on which the port is counting from many years, like:

- ISO certifications for standards adopted in the port,
- monthly information about results achieved and dedicated information about "green" innovations adopted in the port,
- specific webpage dedicated to port's sustainability and initiatives promoted by Luka Koper,
- keeping green areas around the port, for example with the constant contribution provided to the development of the Natural Reserve Skocjan Bay,
- "Live" detection of air pollutants with stations for measurements which are providing data for the public;
- citizens' information through press conferences and news.

5.2 SOLUTIONS DESIGN

What is going to happen in next years is also foreseen in company's Action Plans and for what regards sustainability, it's planned to intensify the collaboration with the stakeholders and with the Municipalities of Ankaran and Koper. Some initiatives adopted in the port of Koper in the last decade can be identified as *best practice*, like for example:

- use of **sound dampers** on the cranes moving at the container terminal. The dampers are used on the engines to reduce the level of noise emitted by the machinery while moving between the yards for the containers' handling. Being the container terminal one of the most committed terminals in the port, thanks to the increase of volumes arriving in the port with container vessels, the noise emitted 24/7 became intensive and disturbing the local community;
- **agreements with shipping companies** about the use of modern vessels arriving in the port in Basin I, which is the nearest location to the city centre. It can reduce the noise too, considering that newer vessels have newer versions of engines, which can reduce the noise and the pollution too;
- **turning the vessels** with their exhausts towards the sea, being them very noisy in case winds blow exactly towards the city centre. This can seem a simple solution, but such a solution can significantly reduce the level of noise and of pollution in general in city's area;
- **mitigation activities** in favor of the Municipalities, like opening a fund for local communities, to be used for the reduction of inconveniences caused by port's activities in the area.

These are examples of solutions proposed by stakeholders during the meetings organized for sustainability purposes and which are included in the new Port's Development Plan, which always considers also the local

community as a fundamental actor in the area, also taking in account that many of the company's employees and their families are living in the port's vicinities and it goes by itself that people will not pollute the area in which they're living.

5.3 POSSIBLE SCENARIOS

Three are in fact the main scenarios that can be developed on the basis of the experiences accumulated in the last decades, also through the interexchange of best practices and knowledges with other ports and associations of logistic operators:

Type of scenario	Operational level linked with sustainable development of the port	Role of Luka Koper in a sustainable logistic chain	Level of involvement of employees	Development of infrastructure
Option1 – Level of trades and freight flows increase	<ul style="list-style-type: none"> ✓ Level of new solutions increase, and sustainable measures are fundamental for a successful working experience; ✓ Automation with noise reduction becomes essential to maintain the port of Koper in a competitive position; ✓ Stakeholders can better collaborate at local level in order to find useful and modern solutions; ✓ Terminals can use more efficient equipment and machinery, upgrading systems and planning works taking in consideration the vicinity of the residential area. 	<ul style="list-style-type: none"> ✓ Luka Koper has an increasing position on the handling of goods which allows a more concrete role in adopting proper measures in terms of sustainability; ✓ Municipalities can identify Luka Koper as an efficient and important actor in the whole area, in terms of sustainability; ✓ Luka Koper has a more important role as a decision maker for the future sustainable actions and development of the national transport infrastructure. 	<ul style="list-style-type: none"> ✓ Luka Koper d.d. becomes the flywheel of the national logistics and economy, which points out its role also in terms of sustainability; ✓ Employees in Luka Koper d.d. and in companies linked with its logistics, improve their role also in the field of sustainability of working processes, exponentially. 	<ul style="list-style-type: none"> ✓ Luka Koper d.d. is involved in the (re)construction of the main/core network's transport infrastructure linking the port with the hinterland and always keeping an eye towards environmental sustainability; ✓ The railway and road links/connections are under a higher level of usage and their length in kilometers is going to increase, which would have an indirect environmental positive effect moving the freights transported by trucks, to the railways.
Option2 – Level of trades and freight flows remain the same	<ul style="list-style-type: none"> ✓ Level of new solutions follows the actual needs at regional level; ✓ The research for new solutions is gradual and in line with the standard upgrades foreseen by the plans and offered by the market; ✓ Increase of new sensors and tests is not 	<ul style="list-style-type: none"> ✓ Luka Koper d.d. maintains its role of crucial actor at national and at regional level for what regards sustainability; ✓ Increasing volumes of freight coming from Far East is managed by the NAPA ports 	<ul style="list-style-type: none"> ✓ Luka Koper d.d. maintains the actual level of knowledge and involvement of employees for initiatives dedicated to the sustainability in port's area; ✓ The level of employees in 	<ul style="list-style-type: none"> ✓ Luka Koper d.d. becomes one of the actors being asked for contribution in the development of the transport infrastructure but it doesn't have a crucial role for what regards sustainability measures; ✓ Level of development of national infrastructure linked with the port

	<p>essential but helps the growing of the level of sustainability in the port area;</p> <ul style="list-style-type: none"> ✓ Stakeholders don't push for new levels of sustainability; ✓ Data about pollution remains at normal level and volumes of cargo can be managed without the necessity for extraordinary measures. 	<p>without exceeding the local levels of pollution – as it was foreseen in previous years;</p> <ul style="list-style-type: none"> ✓ Luka Koper has a neutral role as decisionmaker in national logistics and its sustainable development. 	<p>logistic companies linked to Luka Koper's business are not involved in particular actions related to the reduction of different factors of pollution.</p>	<p>remains the same as in previous years;</p> <ul style="list-style-type: none"> ✓ The financial contribution of Luka Koper to the development of sustainable infrastructure is directly linked with the volumes of transported freight which automatically means that the level of contribution fluctuates.
Option 3 – Level of trades and freight flows decrease	<ul style="list-style-type: none"> ✓ Luka Koper d.d. doesn't need urgent actions or further interventions of processes with ad-hoc measures related to sustainability; ✓ Terminals use the same equipment and only regular updates can be introduced if necessary; ✓ Data measurement remains at same level and no needs for further interventions are foreseen. 	<ul style="list-style-type: none"> ✓ Luka Koper d.d. can lose its position of leading port in the Northern Adriatic if the volumes of cargo decrease only for the port of Koper, which can have indirect consequences also on the level of support to the sustainability actions in the area; ✓ Customers can decide to deviate their transporting routes from the port of Koper because the weight of Koper's port in the area decreases. 	<ul style="list-style-type: none"> ✓ Luka Koper d.d. maintains and in some cases reduces the requested knowledge of its employees in terms of sustainability because of the reduction of freight volumes and risks linked to the levels of pollution; ✓ Also other logistic companies linked with Luka Koper can decide to reduce the level of awareness of employees because of the reduction of businesses in the region. 	<ul style="list-style-type: none"> ✓ Luka Koper d.d. is not involved in the planning and (re)construction of the national and TEN-T main transport infrastructures which limits its role in the awareness of sustainability needed at national level; ✓ National needs for infrastructure development are deviated in other areas and port's role in the area decreases.

Table 7 – Possible scenarios for the Port of Koper

6. Actions and solutions deployment

Depending on the local context and measures proposed by the stakeholders involved in the Target Group, the specific actions and solutions are actually implemented and tested in the selected cases for the SUPAIR project, which are linked with the noise detection in the port's area, the underwater flows in port's basins and the water quality check in port's basins.

In the specific, the measures adopted are the installation of new microphones for the noise detection, underwater camera and sensors for measurements and monitoring of water's quality and flows. The contracts with service providers were signed for five years and the analyses will produce in next years the basis for safer and more secure port's basins, allowing to predict and detect in a quicker way the potential interventions for a more sustainable way of working, in symbiosis with the city of Koper. The first year's analysis allowed to detect the areas of intervention and some measures were adopted like for example the orientation of vessels at berthing, agreements with shipping companies for the use of more modern vessels to be berthed in the first basin etc. The level of noise and pollution are constantly monitored – now with an additional station and data are shared through the following webpage:

<https://www.zivetispristaniscem.si/?page=static&item=10>

For what regards the specific solutions deployment, the port of Koper is involved in such activities for many years and all the news related to the improvements of sustainability levels are always deeply presented on the specific website managed by Luka Koper zivetispristaniscem.si where news and live measurements are proposed and offered for a daily check, measured on different locations around port's area. Many initiatives are going to be taken in the future or have already been started in these years.

6.1 GREEN PORT - WE MEAN GREEN, WE ACT GREEN

The initiative called “*Green port*” wants to raise awareness about sustainability, of all the parties involved in the area, both from the logistic point of view and from the geographical point of view (citizens living in port's proximity).

The port of Koper is part of the city of Koper and at the same time sensitive natural environment. It is surrounded on two sides by a densely populated settlement, in the hinterland by the natural environment of special value, the Škocjan Bay, and externally surrounded by a sensitive marine ecosystem. So every step of the way, the company works with its neighbors in mind. Luka Koper aims to improve the quality of life of local residents, not the other way around. However, the port strives to preserve nature as intact as possible for future generations. It is not always easy, as it is not just up to it. All challenges must be understood and addressed in the spirit of good neighborly relations.

6.2 THE PORT STRIKES A BALANCE BETWEEN ENVIRONMENTAL AND SOCIAL ASPECTS AND ECONOMIC REQUIREMENTS

Luka Koper's development strategy is based on environmental management. It is based on the principle: *"Introduce measures that will not only meet legal requirements, but also reduce the side effects with the best technology."*

It is the only port in the northern Adriatic that has quality systems in place to protect the environment, safety and health at work, manage food safety and more. The ISO 14001 environmental management system for all port activities was established in 2000, in May 2006 it was upgraded to ISO 14001: 2004, and in December 2009 Luka Koper first acquired a state-of-the-art EMAS environmental protection scheme.

6.3 DEVELOPMENT OF A HUB OF GUIDELINES FOR THE PROTECTION OF THE NATURAL ENVIRONMENT

The port of Koper keeps its guiding role in the area for what regards the reduction of pollutants and the better-quality life for the citizens leaving in the proximity of the border with the port. It includes measures like:

- Introduction of modern and economical technologies,
- continuous reduction of emissions into the environment (regular monitoring of results and reporting),
- partnerships with local communities,
- ensuring emergency preparedness,
- continuous improvement of the environmental management system,
- care for the quality of the port area and its natural environment with greenery (more than 2.000 trees and shrubs are planted in the port area).

Concern for the environment, safety and health at work is an integral part of the management policy and organizational culture of the society. The development of the port and the increasing throughput make Luka Koper increasingly concerned about the environment and space, striking a balance between environmental, social and economic requirements.

The concept of the "*green*" port will be further developed, which is why the company has prepared an environmental management strategy until 2030. It is available in the section People and environment / Documents and reports of the webpage indicated in previous paragraphs, for port's sustainability.

For the other cases of long-term actions, strategies are identified in the Port's Development Planning, which includes also the development of the port until the 2040. Obviously, it includes measures also at operative level as well as infrastructural improvements, which are not directly linked with the improvement of sustainability. The pilot actions developed through the SUPAIR project are part of this Development Plan and they foresee the installation of additional and better equipment for the monitoring of port's area, for the improvement of both safety and security level. If from one side the inclusion of new thermo-detecting cameras or new sensors on port's border nets can improve port's security, on the other hand, the installation of new microphones, new sensors and underwater video cameras can improve the monitoring of the pollution levels in port's area, also for the detection of specific intervention areas where the levels of damage can become dangerous for the citizens. At project level, the measurements and analysis of data obtained, detected some specific sources of pollution, which were studied, and concrete interventions proposed by the external experts. Discussions and agreements with the other actors on the logistic chain helps the measures to become more concrete and useful, considering that if just one user applies some measures and others don't follow it, the interventions become deleterious.

7. Coordination with relevant plans

Being a company quoted at the stock exchange and at the same time being owned for the majority of the % by the State, Luka Koper is always included in national development plans, also taking in consideration that Luka Koper is the only Slovenian port, which puts it in the situation that most of the national logistics and consequently of the GDP depends from the level of development of the port of Koper.

At the same time, the measures adopted at national or at local level, must always be in line with the EU strategies and development policies, also considering the fact that Koper and its port are positioned on the Core TEN-T Transport Network of EU, being identified a core port on two of the crucial EU transport corridors: the Mediterranean corridor and the Baltic-Adriatic corridor. The national spatial plan and the national development plan are both always considering the port of Koper as one of the crucial logistic hubs in the country.

The aim of Luka Koper's pilot activities developed through the SUPAIR project are to ensure proposed actions as much as possible, also after the end of the project in June 2020. The port feels linked and coherent with overall strategies at various territorial levels like for example the SECAPs objectives, the Sustainable Energy and Climate Action Plan (SECAP) to be adopted before 2030.

It has to be kept in mind that SECAP's overall objective is to encourage the sustainable development of the cross-border territory, promoting low-carbon strategies for all types of territory, in particular urban areas, by creating relevant adaptation and mitigation measures. In fact, the project activities will lead to the cross-border sharing of tools, methodologies and databases and will generate positive repercussions on local planning for the entire Interreg ADRION program area. The transition to a low carbon society will be implemented in infrastructure interventions but at project level, the port of Koper demonstrated how specific and dedicated interventions can provide useful information for the sustainable development of the port and the living in symbiosis with the local community. The measures adopted were identified through the definition of a Target Group which provided many useful inputs for the later adoption of measures like:

- Creation of a specific fund for the mitigation of damages caused by port's activities to the local community and citizens living in the proximity of the border with the port. The fund serves concretely for the reconstruction of buildings' furniture like windows and doors in order to reduce the effects of noise to the citizens at their homes;
- Progressive movement of port's activities from the actual border with the city to the inland fields where the national and local spatial plans are contributing to the development of the industrial area, where most of the stakeholders will be linked in a concentrated area, dedicated to the business and the commercial activities;
- Agreements with shipping companies are going to be adopted in order to reduce the impact of noisy vessels on the city life. Newer vessels have more silent engines and it can help to mitigate the effects of the increasing volumes of cargo on the local community. Also the planning of works during the day instead of night shifts can help to reduce the pollution levels in the area.

8. Assessment design

The above-mentioned interventions proposed in order to reduce the negative effects of port's activities on the local community, are expected to be developed from 2020 and some of them already started. One of the actions taken in consideration by the port of Koper, and already accomplished, is one of the main outputs of the Activity T2 of the SUPAIR project which foresees the signing of a Memorandum of Understanding (MoU). It has been signed by the port of Koper as well as by other project partners, associated companies, and other institutions and port authorities which count on the sustainable development of ports in the Adriatic-Ionian region.

Following the overall Evaluation Framework, the main goal was to present the detailed way in which the assessment of proposed action plans is expected to be carried out to improve port sustainability. The methodology began with the involvement of the Target Group in the analysis of the situation at local level, with the contribution not only of actors from the world of logistics but also the Municipalities, the national institutions like the Chamber of Commerce or the Administration of the Republic of Slovenia for Maritime Affairs in the sharing of information, of knowledge and proposals for the development of initiatives related to the sustainability in the port's area.

The local collaboration led to the signing of an agreement at the end of 2019, between the Municipality of Koper and Luka Koper, which is focused on the implementation of mitigation measures to reduce the impact of port activities on the environment. The parts both agreed that it is right that all care for each other reciprocally. In the next five years, the port will spend one million euros to implement mitigation measures.

On the other hand, by signing a letter of intent last July 2019, the Municipality gave the green light to extend the first harbor pier, and in Luka Koper it was pledged to implement mitigation measures to reduce the port's impacts. Specifically, an environmental fund was set up at the beginning of 2020, in which Luka would pay 200.000 euros each year to implement these measures. The agreement was signed by the parties for five years with the possibility of an automatic renewal, which means that the port will spend one million euros to mitigate the environmental impact of the port, especially for noise reduction. The goal is to improve the quality of life in the local community. When both achieve this and how good these measures will be, time will tell. Each start is a test, then the parts will see how to proceed.

In addition to this main achievement, the port of Koper has many other activities linked with the mitigation of port's activities for the local community and for the development of a sustainable port near the urban area. As example the following initiatives should be mentioned:

- to design, coordinate and implement a number of projects relevant to the local and wider community: Luka Koper is cooperating with the Society for the Observation and Study of Birds of Slovenia, which is one of the largest non-governmental non-profit nature conservation organizations in Slovenia. The Škocjan Bay, which is home to more than 200 bird species, has been restored. The largest semi-salt marsh in Slovenia is home to numerous fish, amphibians, reptiles, invertebrates and mammals. Particularly friendly, however, are the special residents of the hamlet, the Kamar mares Rosa and Rižana, and the boar Primo;

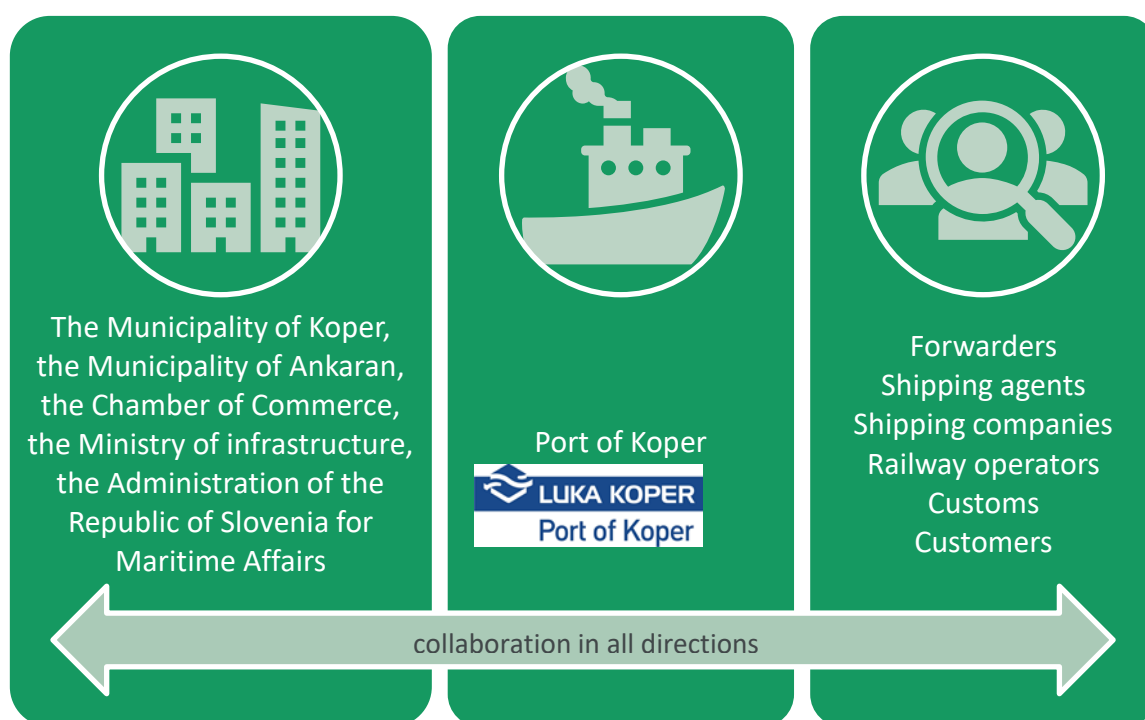
- to cooperate with the Municipality of Koper in the development of Koper as a tourist destination: in 2007, the Port of Koper withdrew its port activities from the western part of the city, where today's passenger terminal is being developed. Due to the geo-strategic position of the port of Koper in the north of the Adriatic, it has a good starting position to become a destination for cruises in the Mediterranean region. Especially in recent years, the company has been receiving a lot of interest and good feedback from shipowners who always like to return to Koper. Each year, during the season, Koper is visited by about 75 ships and 100.000 passengers;
- financing the launch of the University of Primorska: Luka Koper and other local and international companies have financially supported the activities of the University of Primorska. This enabled the successful launch of the Third Slovenian University. Luka Koper is also involved in the UP-Scholarship Fund, which rewards and encourages the best students and offers job opportunities for these students as soon as they finish their studies. One of the directions for university studies dedicated to the sustainable development of areas is directly co-financed by the port of Koper.

9. Monitoring Plan

The short-term plans of the company identified in the Business Plan as well as in the Port's Development Plan are always taking in account the sustainability factors of the port's development. Also considering the SUPAIR project's activities, the signing of the Memorandum of Understanding, putting the accent on the sustainability also after the end of the project, expresses the interest of the parties to develop common measures at regional level, for a period of at least three years. Reports will be prepared in line with the MoU's indications but for the port of Koper it doesn't represent a new task. The annual Balance Sheet presented by the company at the national stock exchange, always contains also the environmental impacts of the port's development and presents the efforts spent to keep the sustainability level in line with the business results achieved.

In the specific, the Department for health and environmental protection in the port of Koper is directly responsibly and works on the sustainable development of the port of Koper and collaborates with many institutions and most important ports worldwide. The fact that the port of Koper participates in the NEPTUNES association, where ports like Piraeus or Rotterdam are involved and sharing knowledge about the measures adopted and results obtained, shows how serious are the intentions of the Slovenian port to participate in such a development, which is representing the future standard of development of ports in the EU area. The best practices sharing with some Northern ports in The Netherlands or Scandinavia shows that the way adopted for the development of the port is correct and that has results mainly for the long-term period. Keeping in account biodiversity and local ecosystems while planning long-period businesses, can represent a crucial positive best practice which might be adopted also in other regional realities after the disseminated results are shared during conferences, meetings and roundtables.

The next years' developing plans are focused, in terms of sustainability, on the collaboration with both the Municipalities surrounding the port's area and with the stakeholders collaborating on the entire logistic chain, from the maritime sector, to the hinterland with transport and forwarding activities.



The fact that all the main entities are involved in port's decisions about business development in line with sustainable growth, demonstrates how the research of a proper solution that satisfies the whole actors involved in the port's activities really represents a goal for the port of Koper. For safety and security in and out of the port, many interventions are planned in the next three years:

- Installation of new sensors and underwater video cameras, for the flow analysis in all the port's basins in order to anticipate the possible solutions in case of vessels damaged or spills of polluting liquids into the sea. Knowing the directions of underwater flows can help in anticipating the direction of pollutants and in the specific to speed up the intervention activities, to reduce the damages at the minimum;
- Installation of newer and more efficient microphones and noise detectors near the border with the city centre, for the reduction of noise pollution and to offer a better living quality to the people living near the port's area;
- Digitalization of procedures at the gates and before the vehicles arrive in Koper, in order to anticipate the administrative part of the business procedures, reducing the air pollution near the city centre. Planning arrivals and departures, preparing the freights to be handled and loaded on vehicles, releasing customs documents before the loading is completed are only few of the advantages offered by the digitalization of data exchanged between the logistic operators in the port. All together they'll contribute to the reduction of air pollution in the city area and at the same time it will optimize operative procedures.

The next three years will show if the foreseen improvements are useful and sustainable as indicated by the projections made through studies and analyses. The first measurements and data checked are showing that the adopted measures are having positive effects on the quality of air (reduction of noise and reduction of micro particles) as well as on operative strategies, with the progressive digitization of documentation and procedures to be adopted in the port.

Last but not the least, in previous chapters also the infrastructural improvements were mentioned in a larger view of reduction of traffic and noise near the city centre. At this regard, the opening of the new gate of Sermin has offered immediate concrete results, by moving a considerable % of trucks from the city centre to the industrial zone of Sermin, where the trucks transporting containers and cars have been allowed to enter the port, and in this way, avoiding the city traffic. Following the plans for the next three years, a similar intervention is going to be completed and to be operative at the beginning of 2021, while the third gate of the port of Koper (the new Bertoki gate) is going to be opened to additionally relieve the traffic in the city centre and consequently the citizens.