Executive Summary

Rijeka, based on 2005 EIA report (May 2008)

EXTENSION OF BRAJDICA CONTAINER TERMINAL IN PORT OF RIJEKA

ENVIRONMENTAL IMPACT ASSESSMENT STUDY
EXTENSION OF BRAJDICA CONTAINER TERMINAL IN PORT OF RIJEKA

ENVIRONMENTAL IMPACT ASSESSMENT STUDY

- Executive Summary -
## Table of Content

List of Tables and Figures .................................................................................................. 4  
1. INTRODUCTION ......................................................................................................... 5  
2. REASONS FOR THE EXPANSION OF BRAJDICA TERMINAL ................................ 5   
   2.1 JUSTIFICATION FOR CHOSEN ALTERNATIVE ................................................ 6  
3. LOCATION AND SPATIAL INTERVENTION ................................................................ 6  
4. ENVIRONMENTAL BASELINE DATA ........................................................................ 8  
5. ENVIRONMENTAL IMPACTS DURING CONSTRUCTION AND OPERATION OF THE BRAJDICA TERMINAL EXTENSION ................................................................. 11   
   5.1. ENVIRONMENTAL IMPACTS DURING CONSTRUCTION .................................. 11  
   5.2. ENVIRONMENTAL IMPACTS DURING OPERATION ......................................... 12  
6. ENVIRONMENTAL MITIGATION MEASURES ........................................................... 13   
   6.1. DESIGN PHASE .............................................................................................. 14  
   6.2. CONSTRUCTION PHASE .............................................................................. 15  
   6.3. OPERATION PHASE ...................................................................................... 15  
7. ENVIRONMENT MONITORING PROGRAM ........................................................... 16  
8. IMPLEMENTATION ARRANGEMENTS ................................................................. 17  
9. PUBLIC CONSULTATION AND DISCLOSURE ...................................................... 18  
Annex 1. ENVIRONMENTAL MONITORING MAP ..................................................... 19  
Annex 2. MINUTES OF PUBLIC CONSULTATION ...................................................... 20
List of Tables and Figures

Figure 1 Susak and Rijeka West basins .......................................................... 7

Table 1 Monitoring results of air quality in the city of Rijeka in 2005 .............. 9

Table 2 Results of sea water monitoring performed in 2005 .......................... 10

Table 3 Noise emissions standards .................................................................. 10

Table 4 Croatian design characteristics for discharge of different type of wastewaters .................................................................................. 14
1. INTRODUCTION

The Environmental Impact Assessment (EIA) for the extension of Brajdica terminal was conducted by Rijekaprojekt Ltd during 2004-2005. The Ministry of Environmental Protection, Physical Planning and Construction (MEPPC) issued a positive decision on the implementation of the mitigation measures and monitoring plan identified in the EIA following several document revisions and an intensive public discussion held in September 2005. Based on this EIA positive decision, the location permit for the proposed terminal construction was issued in April 2006.

The importance of rehabilitation and capacity increase of the Port of Rijeka are included in the Croatian Physical Planning Strategy and Program (PPSP) adopted by the Parliament in May 1999 (Official Gazette 50/99). Rijeka port is identified as the most important transport infrastructure site in the North Adriatic, favourably and strategically located from an economic and communication point of view.

Port infrastructure improvements, as highlighted in the PPSP, are considered of high state importance. These improvements include better port organization and management and enhanced business development conditions in line with European port management requirements.

Revitalization of the maritime traffic in Rijeka is crucial for Croatia and adjacent countries. Technologies for transport, reloading and port handlings are developing today in ways that the ports are becoming specialized for particular types of cargos.

The development goals for strengthening of maritime traffic in Croatia include the following aspects:

- Re-evaluation of the Adriatic sea transportation advantages based on assessment of traffic trends and improved coastal and ferry navigation;
- Reorganization, expansion and modernization of Croatian ports (Rijeka, Split and Ploce) in a way that will allow quality competition and better connection with the Central Europe;
- Improvement of monitoring of technical and technological trends in the maritime traffic (use of containers, unit cargos);
- Improvement of the legislation to allow development of small investment in maritime traffic operation.

2 REASONS FOR THE EXPANSION OF BRAJDICA TERMINAL

The country political situation in the 90’s (the break-up of former state, the independence war, the establishment of the Republic of Croatia) lead to a dramatic decline in the Brajdica terminal throughput from 52,031 TEUs in 1989 to 7,000 TEUs in 2000. However, due to an increased maritime traffic starting with 2003, the Brajdica throughput recorded about 28,000 TEUs with about 27.600 TEUs registered in the first six months of 2004.

Consequently, the Brajdica Container Terminal needs urgent technical and capacity management improvement. The throughput reloading capacities were limited during the 90’s and the capital investment and regular maintenance was scarce. Yard transport cranes storage equipment acquired in the past was not in operation because of the reduced throughput. In 2000, several technical improvements were introduced in the Brajdica terminal operation including: (i) the installation of two new “Samsung” gantry cranes in addition to the existing one (“Metalna” crane); (ii) the establishment of a feeder container
service with the largest Mediterranean ports (Gioa Tauro, Malta) and agreement on weekly liner calls with big world ship operators (e.g., ZimLine, CMA-CGM); (iii) the procurement of two "Belotti Tiriton" storage mobile cranes; and (iv) the procurement of new storage mechanical appliances (e.g. RO-RO tractors, semi-trailers and trailers, fork-lifts for full and empty containers).

The direct connection of the Brajdica terminal to the Rijeka-Zagreb motorway through the construction of D-404 road will create conditions by 2009 for the Rijeka port to become competitive with adjacent ports while providing services to bigger vessels coming into the Adriatic Sea.

The Port Authority of Rijeka (PRA) prepared development plans for the Brajdica container terminal that will allow this terminal to receive an annual throughput of 120,000 TEUs. In order to enable and reach this envisaged throughput the following infrastructure interventions are needed for the existing Brajdica terminal:

- Construction of a second terminal as an extension of the existing one from 328 meters to 624 meters in length with a sea depth along the terminal up to 14.5 meters;
- Construction of a storage area with appropriate supporting infrastructure (e.g. office facilities).

The proposed Brajdica terminal extension will enable this port area to accommodate big ships (up to 60,000 DWT) improving the competitive capacity of the overall Rijeka port.

2.1 JUSTIFICATION FOR CHOSEN ALTERNATIVE

In March 2005, the MEPPC expressed the positive opinion that the extension of Brajdica terminal is in accordance with the current physical planning documents. The proposed location is found to be favourable due to (i) national importance of the development of port of Rijeka as emphasized in all physical planning documents including proper access to road and rail connections; and (ii) realization of planned capacity following the extension of Brajdica container terminal.

The EIA concludes that extension of Brajdica container terminal in existing and planed port - industrial zone will actually improve the local environmental conditions since:

- construction of D 404 road across the area of Brajdica, which will connect the container terminal and the Susak basin with the Rijeka roundabout, will enable shortest and easy transport of freight from the city avoiding traffic through city centre;
- implementation of mitigation measures and modernization of the Brajdica container terminal, visual aspects and ecological conditions in Susak Basin will improve.

3. LOCATION AND SPATIAL INTERVENTION

The largest part of Croatian export and import activities are done through the port of Rijeka.

The town and port of Rijeka is situated in the northern part of the Bay of Kvarner where the Adriatic Sea retracts most deeply into the European continent. This geo-transport location is naturally the most convenient exit to the open sea for Croatia, Hungary, Austria, Czech Republic, Slovakia, the western part of Ukraine, the southern part of Poland and the southern part of Germany. Favourable location on the coast, where up to 60m deep bay offers all the prerequisites for a safe port and the acceptance of the largest and
most modern ships. Rijeka is connected with Europe through two railway lines, across Zagreb and Ljubljana, while road routes exist towards Zagreb, Ljubljana, Trieste and Dalmatia. The oil pipeline starts from Kvarner and leads towards oil refineries in Croatia, Hungary, Austria, Serbia, the Czech Republic and Slovakia.

The main advantage of the port of Rijeka, in comparison with competitive ports, is its natural sea depth in the bay, as well as in the port areas. Compared to the ports of the North Sea and the Baltic Sea, the main advantage is that the Rijeka port offers the shortest sea route between Europe and the Near, Middle and Far East.

Rijeka port zone is situated in the proximity of city centre in an isolated industrial zone. It actually covers the city waterfront. The port is divided into two zones: a) the Rijeka west basin (43 ha) intended for general cargo handling; and b) the Susak basin (31 ha) intended for storage and container manipulation (e.g., RO-RO terminal, container terminal). The Brajdica container terminal is located in the Susak port - industrial area, in the south of the city residential area (Figure 1).

The extension of Brajdica terminal allows an additional 300 m length of docking coast for ships up to 60.000 DWT, new warehouse and operating surfaces totalling 1,4 ha, which will be used for container capacity of 120.000 T TEU annually.

The Brajdica terminal will cover 9,95 ha on the land and 7,2 ha on the sea. The land surface is intended for port operating surfaces, railway terminal (already existing), roads, closed warehouses, office facilities and mechanical workshops.

The extension of Brajdica terminal will be constructed using the same methodology that has been used during the construction of original Brajdica terminal. The structure is envisaged as a concrete key-wall constructed on a stone/gravel mound that will be build
directly on the sea bed. The key wall will be made of concrete blocks (up to 10 blocks positioned on top of each other with a length of up to 30 m), which are strengthened by cement grout after final placement. A reinforced concrete beam will be constructed on top of the final layer of concrete blocks, for the purpose of strengthening and interconnecting the different blocks. The area between the key wall and the existing shore line will be filled using soil and rock material collected from regulated existing quarries.

The proposed extension of the Brajdica terminal will improve the wastewater system on the area that needs proper rehabilitation. Currently, the area’s sewerage system is only partially connected to the city collector, while majority of the wastewater is collected in three septic tanks. The Susak residential area located north of Brajdica terminal is discharging its domestic wastewaters into the sea since the collector is partially deteriorated. The EIA developed for Brajdica extension proposes construction of a new collector in the Brajdica area, which will solve current improper waste waters discharge into the sea.

The storm waters are currently running into the sea across the key wall while several drain wells located on one side of the terminal discharge untreated water into the sea.

Furthermore, the EIA proposes construction of the sewerage system for collection and disposal of oily wastewater from ships and maintenance of port equipment and vehicles.

4. ENVIRONMENTAL BASELINE DATA

The EIA study presents general meteorological data for city of Rijeka and Brajdica terminal, which includes historical analysis of the wind trends, dominant waves, harmonic analysis of sea level (tides), and climatic characteristics. The geotechnical characterization is presented through description of geological background, geotechnical and hydrogeological data and seismic characteristics. The study emphasizes the lack of data on sea species or habitats in the area of Brajdica terminal, and only identifies degradation of life due to the historical extension of Brajdica where filling with soil and rock material was not properly controlled. This issue would be addressed for any future expansions through proper independent supervision. Furthermore, the study analyzes the current infrastructure conditions on Brajdica terminal and identifies necessary upgrades. These upgrades imply separation of water supply system from the hydrant network, treatment of storm waters, rehabilitation of existing collectors, installation of public lighting, installation of electrical network, phone installation, public announcement system, video surveillance, etc.

Main emphasis was given in the EIA to the description of current environmental loads, which are summarized bellow.

AIR QUALITY

There are no large stationary sources of emission in the Brajdica terminal area. There are several small boiler rooms for heating of the port offices that use gas or light fuel, which do not present significant source of pollution.

The local monitoring network includes six stations for monitoring the ambient air quality in the city of Rijeka. None of these stations is in the Brajdica terminal area. Collected data include concentration results for $SO_2$, $PM_{10}$, Pb and Cd, in air particles and total sediment matter, $NH_3$, $NO_2$, $H_2S$, $O_3$, and PAH. The frequency of monitoring and the process of air quality assessment are established in the Regulation on Recommended and Limited Values of Air Quality (Gazette 133/05). Table 1 presents the air quality situation in the city of Rijeka based on the monitoring data collected at six stations (numbered from 01 to 06) in 2005. According to these results, high concentrations of $SO_2$, $NO_2$, PAHs and $H_2S$ (station 04) as well as smoke (station 02) and particulate matter (station 06) were registered in the center of the city and around the Mlaka refinery.
Table 1 Monitoring results of air quality in the city of Rijeka in 2005

<table>
<thead>
<tr>
<th>Particles</th>
<th>First category</th>
<th>Second category</th>
<th>Third category</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO2</td>
<td>01, 02, 03, 05</td>
<td>04</td>
<td></td>
</tr>
<tr>
<td>Smoke</td>
<td>01, 03, 04, 05</td>
<td>02</td>
<td></td>
</tr>
<tr>
<td>Air particles</td>
<td>03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pb in air particles</td>
<td>03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cd in air particles</td>
<td>03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PM10</td>
<td></td>
<td>06</td>
<td></td>
</tr>
<tr>
<td>Total sediment matter</td>
<td>03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pb in TSM</td>
<td>03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cd in TSM</td>
<td>03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH3</td>
<td>03, 04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NO2</td>
<td>04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2S</td>
<td>04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O3</td>
<td>03</td>
<td></td>
<td>04</td>
</tr>
<tr>
<td>PAH (BaP)</td>
<td></td>
<td></td>
<td>04</td>
</tr>
</tbody>
</table>

SEA AND SEDIMENT QUALITY

Although the physical oceanographic parameters in the Rijeka basin have been researched since 1976, none of the monitoring points is located near Brajdica terminal. The Public Health Institute in Rijeka is in charge of analyzing the quality of bathing water on the beaches\(^1\) in accordance with the national *Regulation on Quality of Bathing Water on Beaches* (Official Gazette 33/96). Results collected during 2000 - 2004 showed that there is a constant source of microbiological pollution in the sea. The quality of river Rijecina\(^2\) monitored regularly shows strong impact on the water microbiological parameters but little effect on the water quality chemical parameters. Research data collected during the 1980's on the wider port area indicated the presence of degraded and nitrophylic biological species in the tidal zone.

Because of the presence of oil refinery in Rijeka and to less extend as a consequence of the overall port activities, oil and oil derivatives are the most common polluters in the bay. Total hydrocarbons are found in the bay sediment in concentrations ranging from 18 to 211 mg/kg. PAHs were measured on four locations in Rijeka Bay, none of which is in Brajdica area. The results obtained range from 3.13 to 41 \(\mu\)g PAH/kg. As of today, Croatian legislative system does not define any thresholds for the sediment pollution.

According to information presented in the Physical Plan of Primorsko Goranska County (Official Gazette, 14/00), the sea quality around the Brajdica terminal is classified as a second category sea. The national *Regulation on Waters Classification* (Official Gazette 77/98) and the *Regulation on Dangerous Substances in Waters* (Official Gazette 78/98) define the standards and values for a second category sea.

Four sea quality monitoring points were used for sample collection around the Brajdica terminal area during the EIA preparation in 2005. Results of samples taken at different depths in four different locations (Table 2), i.e. 30 cm below the surface and 30 cm above the sea bottom were compared against standards listed in the national *Regulation on Standards of Bathing Water on Beaches* (Official Gazette 33/96) and indicated compliance with a second category sea standard and value for three of the four samples. The sample

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\(^1\) There are 21 beaches in the city of Rijeka
\(^2\) The river is located on one side of the delta close to Zagreb pier
with non-compliant values, due to fecal waste water coming from urban areas, was the furthest from the existing terminal. Out of the four samples the sample in front of the existing terminal showed the least pollution.

Table 2 Results of sea water monitoring performed in 2005

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P2</th>
<th>P2</th>
<th>P3</th>
<th>P3</th>
<th>P4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Physical and Chemical Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>12.2</td>
<td>12.1</td>
<td>12.1</td>
<td>12.1</td>
<td>12.8</td>
<td>8.2</td>
</tr>
<tr>
<td>Turbidity</td>
<td>2.66</td>
<td>0.63</td>
<td>0.57</td>
<td>0.3</td>
<td>7.38</td>
<td>0.58</td>
</tr>
<tr>
<td>Salinity %</td>
<td>24.09</td>
<td>33.95</td>
<td>37.32</td>
<td>33.62</td>
<td>37.7</td>
<td>24.31</td>
</tr>
<tr>
<td>Oxygen saturation%</td>
<td>108</td>
<td>105</td>
<td>115</td>
<td>106</td>
<td>115</td>
<td>107</td>
</tr>
<tr>
<td>pH</td>
<td>8.07</td>
<td>8.14</td>
<td>8.15</td>
<td>8.16</td>
<td>8.15</td>
<td>8.19</td>
</tr>
<tr>
<td>NH3 mgN/L</td>
<td>0.322</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>0.003</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>PO43- mgP/L</td>
<td>0.081</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

**Bacteriological Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>P1</th>
<th>P2</th>
<th>P2</th>
<th>P3</th>
<th>P3</th>
<th>P4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total coliforms/100 ml</td>
<td>&gt;2000</td>
<td>52</td>
<td>31</td>
<td>123</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Feacal coliforms/100 ml</td>
<td>&gt;2000</td>
<td>17</td>
<td>10</td>
<td>72</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Fecal streptococes/100 ml</td>
<td>&gt;2000</td>
<td>22</td>
<td>13</td>
<td>24</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**NOISE**

Containers reloading generates a certain level of noise for the residential area situated north of Brajdica terminal. However, the noise originating from city traffic and nearby railway (located between the port and residential area) is stronger than the noise produced around the Brajdica terminal area. Table 3 provides the noise limits stipulated in the national Regulation on Maximum Allowed Noise Levels in Area Where People Work and Live (Official Gazette 145/2004).

Table 3 Noise emissions standards

<table>
<thead>
<tr>
<th>Zone</th>
<th>Purpose</th>
<th>Maximum allowed noise emissions</th>
<th>Maximum allowed noise emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$L_{RAeq}$ in dB(A)</td>
<td>$(L_{day})$</td>
</tr>
<tr>
<td>1</td>
<td>Rest and therapy areas</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Residential</td>
<td>55</td>
<td>40</td>
</tr>
<tr>
<td>3</td>
<td>Mixed, mainly residential</td>
<td>55</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>Mixed, mainly business</td>
<td>65</td>
<td>50</td>
</tr>
<tr>
<td>5</td>
<td>Business (manufacturing, industry, warehouses)</td>
<td>On the border the noise cannot exceed 80 dB (A)</td>
<td>On the border the noise cannot exceed the limited value of the adjacent zone</td>
</tr>
</tbody>
</table>
4.1. SOURCES OF POLLUTION

Accidental spillage from port activities represent a source of pollution around the overall port area. However, the PRA is currently preparing an Operational Instructions with Information on Berthing and Stay of Ships in the Port, on Handling of Dangerous Goods and on Calling Port Emergency Services. In addition, the PRA was preparing to implement the Regulation on Port Operations and Methods of Using Port Facilities in 2006 [done]. On June 24, 2004, the Ministry of the Sea, Tourism, Transport and Development (MSTTD) has approved Port Facility Security Plan for the port of Rijeka prepared in accordance with the International Ship and Port Facility Security Plan (ISPS Code). PRA is currently implementing this plan.

Storm waters are other sources of pollution since currently they are not treated sufficiently according to the engineering standards and are allowed to wash out all the oils from the operating surfaces directly into the sea. Furthermore, the business zone of Susak located behind Brajdica terminal generates wastewater that is directly discharged into sea since the collector system in the area is partially deteriorated.

Based on origin and characteristics, the waste generated around the Brajdica terminal can be hazardous and non-hazardous. Hazardous wastes are waste motor oils, hydraulic and oils originating from transformation substations, oil packaging, and batteries as well as sludge from the oil/water separators. Non hazardous waste is generated through different activities like cleaning of the terminal area (wood, plastic packaging, cardboard, cloth, etc.), through maintaining the sewerage system (solid waste on screens), and generation of port activity waste produced with similar characteristics to municipal waste by workers.

The EIA study concludes that hazardous waste management was not fully in line with the regulation, because of improper separation of waste. However, since 2005, PRA is implementing the Port Waste Management Plan for Ship-generated Waste and Cargo Residues, which outlines the main measures and actions related to waste management in accordance with international standards.

The Brajdica terminal was extended during years steadily. However, there was no control on the quality and quantity of the material used for expansion. For example, in 2003 around 50 t of mud was used for land reclamation, which caused sea turbidity that lasted for several days and spread to far extends.

Freight transportation might create durable impacts on the port environment. About 30% of the Rijeka’s port capacity will be transported by rail system while the remaining 70% by roads. The port generated traffic as well as port operations affect the traffic safety and the air quality, and reduce the overall roads capacity. During preparation of the EIA the freight traffic used roads through the centre of the city. The Rijeka Gateway 1 project plans to construct a new road (D-404 4.4 km long) across the area of Brajdica, which will connect the container terminal and the Susak basin with the Rijeka roundabout, avoiding traffic through the city centre. Also, the location of the railway marshalling yard between the port and the residential area in Susak basin provides significant source of noise in the area.

5. ENVIRONMENTAL IMPACTS DURING CONSTRUCTION AND OPERATION OF THE BRAJDICA TERMINAL EXTENSION

5.1. ENVIRONMENTAL IMPACTS DURING CONSTRUCTION

During construction, the management of the material (soil and rocky material) used for land reclamation of the extended terminal will create several environmental impacts on the environment including effects on air quality, soil and seawater quality, noise, and temporary degradation of landscape.
The material used to fill in mainly the area between the new constructed key wall and the existing shore line will be chosen in such way to help minimize the air, sea and soil pollution. The filling will be carried out with uncontaminated, inorganic geological material brought from legally operating quarries. Any disposal of sludge or other construction waste together with fill material is strictly prohibited.

Due to the high number of trucks which will convey the material to the port, it is suggested to reach an agreement with the city of Rijeka on routes and time of transport as well as measures for minimizing the air pollution, such as speed limit or watering and covering of the cargo during transportation. In coordination with the city of Rijeka the roads will have to be repaired after completion of the terminal extension works. The company responsible for transportation of material will have to maintain the road safety during the construction phase (e.g. cleaning of the mud on roads).

The land reclamation affiliated with the extended terminal construction will have inevitable impact on the sea quality. During filling, the turbidity of the sea will increase. Increased amounts of suspended substances in water will significantly reduce light intensity, necessary for algae photosynthesis. To minimize these impacts the contractors are encouraged to use inorganic construction materials with maximum 5% silt and to conduct works outside the tourist season.

Some increased pollution loads into sea may be caused by direct or indirect contamination of surface waters due to accidental spills or mishandling of hazardous materials. Stockpiling of construction material should be avoided by following proper storage conditions at the construction site while using covers for protection where possible against weathering. Hazardous materials (lubricants, oils) should be kept on impermeable surface, and absorbents like sand or sawdust should be available for quick handling of small accidental spillages. All materials should be handled in line with instructions included in the Material Safety Data Sheets present at the construction site. Hazardous waste should be handled according to Regulation on Hazardous Waste Management (Official Gazette 32/98).

The noise is also an inevitable environmental impact during construction. The noise could be limited by following good management practices and limiting works during regular daily shifts. The equipment and machinery used should be calibrated according to the national Ordinance on Safety of the Equipment (Official Gazette 135/05) and the Regulation on testing the working environment and dangerous equipment and machinery (Official Gazette 114/02). The trucks of bearing capacity above 3,5t and performance of above 75 kW should not exceed 118 dBA. The trucks of bearing capacity above 12t and performance of above 125 kW should not exceed 119 dBA. It should be noted that all vehicles manufactured after 1996 comply with this regulation.

Hazardous and recyclable waste types, for which a system for collection and treatment exists, as per secondary legislation requirements, should be separated and submitted for proper disposal and treatment by authorized companies. The contractor is responsible for waste management as required by the national Law on Waste.

The landscape of the port zone has been affected especially because many areas were not properly constructed based on good planning. The completion of Brajdica container terminal will actually improve the port area aesthetics, by selecting material, shapes and colours that would revitalize the landscape.

5.2. ENVIRONMENTAL IMPACTS DURING OPERATION

The major long-term environmental impacts during the operation of the extended Brajdica container terminal will include mainly noise and waste generation.
As the extended terminal is designed for reloading of containers, increased noise levels are expected. Main sources of the noise are the port generated traffic (docking of ships, train and road freight) and port operations (cranes, vessel, yard gantry, container transporters, and other equipment). However, because of the location of the Brajdica terminal in the industrial area of the port, the effects of the noise on the Rijeka population are somehow moderate. The noise will be decreased by using precautionary measures during container handling through proper planning of the cargo and equipment reloading, in order not to exceed limits set by the Regulation on Maximum Allowed Noise Levels in Area Where People Work and Live (Official Gazette 145/2004).

The equipment and machinery used should be calibrated according to the Ordinance on Safety of Equipment (Official Gazette 135/05) and the Regulation on Testing the Working Environment and Dangerous Equipment and Machinery (Official Gazette 114/02). The trucks of bearing capacity above 3.5t and performance of above 75 kW should not exceed 118 dBA. The trucks of bearing capacity above 12t and performance of above 125 kW should not exceed 119 dBA. All vehicles manufactured after 1996 comply with this regulation. Cranes and yard gantries should emit less than 103 dBA, while container transporters (50-110 kW) should not exceed 116 dBA.

The regular port activities will generate both hazardous (e.g., waste motor and hydraulic oils, waste oil packaging, waste oils from transformation substations, batteries and sludge from oil/water separator) and non hazardous waste (e.g., waste from cleaning of the operating surface (wood, plastic bags, ropes, cardboard, etc), waste from ships, and waste generated as a result of workers’ activities in the port. The operator has developed a Waste Management Plan according to the national Waste Law, based on which possible waste types should be identified and their management properly described.

Port-related accidents occur rarely and are usually the cause of undesirable environmental impact of moderate intensity for a short time-duration. Such accidents can occur during handling of oil derivatives, equipment malfunctioning, fires or explosions on ships, or during incidents caused by ship mismanagement. The basis for the port safety is the Regulation on Handling of Dangerous Substances, Conditions and Ways of Shipping, Loading and Unloading of Dangerous Substances, Bulk and Other Cargo in Ports and Ways of Prevention of Oil Stains Spreading in Ports (Official Gazette 51/04).

The Brajdica container terminal is designed for reloading of containers; therefore no significant air pollution is expected when performing reloading activities of such type of cargo. No reloading of dry bulk or bulk cargos will be performed in this terminal. The increased traffic due to the extended terminal may be additional source of air pollution, i.e. transportation of cargo to and out of the port. However, the EIA underlines that air pollution on residential area will be insignificant with the completion of the new road 404, enabling transportation outside of the city centre.

Furthermore, the extension of the terminal may increase potential pollution of sea from ships. For example, management of ballast waters, oil sludge (tar residue from oil burning) and dangerous cargo (e.g. herbicides, ethylene, mercury, or acetylene gas) present certain environmental risks if accidents occur during docking, unloading, or storage in the warehouses. However, if such risks occur they would be managed in accordance with the existing PRA Operating Emergency Plans and Waste Management Plans. The proposed collection and treatment of waste waters will significantly reduce possibility of sea pollution. Port operation and equipment management together with transfer substations could present certain risks of lubricant and oil pollution if accidents occur.

6. ENVIRONMENTAL MITIGATION MEASURES
6.1. DESIGN PHASE

The maritime traffic in the area of Brajdica Container Terminal is regulated according to existing national and international laws and rules for maritime traffic. The EIA requests that PRA prepares a Maritime Study for Calling and Leaving the Container Terminal, which will allow proper management of ships traffic in and out of the terminal. PRA has prepared so far the Regulation on Port Operations and Methods of Using Port Facilities which is a handbook to assist all ships when entering or leaving the local waters of Rijeka and during their stay within the Rijeka Port area.

The EIA provides information on the system design criteria for the required level of waste water treatment of the water pollution generated by the port activities including oiled waters from ships, waters from cleaning of railway cars and trucks; and waste waters from maintenance activities. According to the national regulations, the wastewater system that will reduce impacts of waste waters on the sea quality should meet design characteristics as those listed in Table 3. Furthermore, the EIA suggests the need to connect sanitary and storm wastewaters collected from traffic and operating surfaces to the existing wastewater system in the City of Rijeka. This will be possible through the design of two collector systems, collector Učka-Brajdica and collector Sušak-Brajdica. According to Croatian legislation sanitary wastewaters should comply with certain criteria before being discharged into city collector system (Table 4).

Table 4 Croatian design characteristics for discharge of different type of wastewaters

<table>
<thead>
<tr>
<th>Characteristics of wastewater</th>
<th>SS (mg/l)</th>
<th>COD (mgO₂/l)</th>
<th>BOD₅ (mgO₂/l)</th>
<th>Total oil and grease (mg/l)</th>
<th>Mineral oils (mg/l)</th>
<th>Anionic detergents (mg/l)</th>
<th>Non-Anionic detergents</th>
</tr>
</thead>
<tbody>
<tr>
<td>WW discharged into the sea</td>
<td>35</td>
<td>125</td>
<td>25</td>
<td>25</td>
<td>5</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Wastewater discharged into the city collector system</td>
<td>700</td>
<td>250</td>
<td>100</td>
<td>30</td>
<td>10</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

The operational and organizational design of the extended terminal will reflect response requirements related to unforeseen accidents. This will include: organization of the response system, preparation of plans for implementation of regulatory measures, monitoring and reporting, hazardous substances storing and operating procedures. The PRA will update the emergency operation plan due to the increase in terminal operating surface. The EIA recommends designing transformation substations (PCB oils) for dry cooling to minimize risk from oil and PCB pollution in case of accidents or leakages.

Technological standards for mechanical and other equipment emitting noise are established for obtaining construction permits. The equipment and machinery used should be calibrated according to Ordinance on the Safety of Equipment (Official Gazette 135/05) and the Regulation on Testing the Working Environment and Dangerous Equipment and Machinery (Official Gazette 114/02).

The EIA calls for preparation of several studies during the design stage that will ensure quality of Brajdica container terminal management: a) Environment control policy - identifying procedures for appointment of team for project management, terminal management and for monitoring of enforcement of mitigation measures identified in the EIA, b) Environmental conditions assessment - document that would serve as baseline for preparation of the Environmental Management Plan and c) Environmental Management plans.
Plan. [The Control Division of PRA now includes a person responsible for Environmental Control, and the EMP has been published]

Measures related to visual aspects of the new terminal will be incorporated into the main design as follows: (i) special attention will be given to aesthetic appearance of the port especially from sea-side view, implying selection of specific physical structure of cargo port in terms of shaping and colours for all port elements (terminal and handling space, all structures and all plants for cargo handling); (ii) "Landscape Design" will be prepared; (iii) the most favourable location for disposal of surplus construction material will be investigated and selected; and (iv) "Construction Site Organization and Maintenance of Mechanical Equipment Design" will be prepared for obtaining construction permit. [The design has been adjusted to meet city requirements]

6.2. CONSTRUCTION PHASE

Waste generation, noise and effects from filling the area between the key wall and the existing shore line present impacts for which mitigation measures should be proposed and implemented during construction phase. The following paragraphs address these mitigation measures.

NOISE

The works should be limited on daily basis from 6.00 a.m. to 6.00 p.m. During construction, the Contractor must not exceed maximum allowed noise emissions from the construction site; for this he will implement general measures for minimizing noise emission such as attested equipment according to the national noise standards.

According to Croatian legislation, during the construction period (8 AM and 6 PM) it is allowed to exceed stipulated noise limits by 5dB(A). On an exceptional basis, if technological process requires, it is allowed to exceed stipulated noise limits by 10 dB(A) for 2 days in a month.

WASTE

Hazardous waste will be generated in small quantities and it will be separated from solid waste according to the national Waste Law. The contractor will follow specific procedures for hazardous waste as defined in the national Waste Act and secondary legislation. This implies collection, disposal by and to an authorized company for hazardous waste management, and preparation of requested documentation. All recyclable fractions will be separated from non recyclable waste and disposed to appropriate collection points with proper documentation, in accordance to existing secondary legislation. Non recyclable waste will be taken to accredited landfill. The construction site will be cleaned at the end of works and all debris and waste materials will be disposed of in accordance with clauses specified in the bills of quantities. Municipal waste will be collected in special containers properly labelled.

EFFECTS FROM FILLING THE AREA BETWEEN THE KEY WALL AND THE EXISTING SHORE LINE

Filling has to be carried out with uncontaminated, inorganic geological material possibly with pure stone material with maximum 5% silt particle contents and other inert materials. Any disposal of sludge or other waste especially hazardous wastes together with material for sea filling are strictly prohibited.

6.3. OPERATION PHASE

The operator of the terminal is obliged to prepare a technological plan for proper terminal operation including clear specification of the implementation of environmental mitigation measures during the operation phase in accordance with current national and international
regulations. The following paragraphs list the proposed mitigation measures related to noise and waste pollution, port traffic and unexpected port accidents.

NOISE

The arrangements of the containers should be done in a way to use them as a noise barrier toward the residential area where possible, meaning they should be organized in a way to barrier the most intensive noise sources in the port (in this case is this the noise from road and railway transport).

When procuring equipment and machinery, one should take into consideration noise emissions. The equipment and machinery used should be calibrated according to the Ordinance on Safety of Equipment (Official Gazette 135/05) and the Regulation on Testing the Working Environment and Dangerous Equipment and Machinery (Official Gazette 114/02).

Require from transportation companies being in charged for in- and out-transportation to use attested road and railway vehicles. The trucks of bearing capacity above 3,5t and performance of above 75 kW should not exceed 118 dBa. The trucks of bearing capacity above 12t and performance of above 125 kW should not exceed 119 dBa. All vehicles manufactured after 1996 should comply with this regulation.

All mechanical and other equipments used during port operations must be in good working conditions. Operation noise cannot exceed 65 dBA during day or 50 dBA during night.

WASTE

All hazardous waste (waste motor and hydraulic oils, waste oil packaging, waste oils from transformation substations, batteries and sludge from oil/water separator) generated on the port area must be collected separately in special storage that meets proper technical conditions for storing hazardous waste, as defined in the national Regulation on Hazardous Waste. Municipal waste will be collected in containers specially labelled and disposed by an authorized company.

POSSIBLE ECOLOGICAL ACCIDENTS

The terminal will be organized to prevent fire accidents as much as possible in accordance to the national Law on occupational health and safety and the Law on fire protection.

The overall port safety measures will be in accordance with the Regulation on Handling of Dangerous Substances, Conditions and Ways of Shipping, Loading and Unloading of Dangerous Substances, Bulk and Other Cargo in Ports and Ways of Prevention of Oil stains Spreading in Ports (Official Gazette 51/04).

LAND AND SEA TRAFFIC

All vehicles coming in and out of the area of the new Container Terminal must be equipped in conformity with valid national laws. All ships coming alongside the Brajdica Container Terminal quay at the port of Rijeka must respect provisions of valid laws and port internal regulations.

7. ENVIRONMENT MONITORING PROGRAM

During construction, the contractor will enforce all environmental mitigation measures, including the health and safety measures (accident prevention, etc.) and the control of pollution and wastes at the work sites and construction camps. PRA environmental division (operator) will conduct the monitoring during operation phase. There will be day-to-day supervision of all activities to ensure that sound environmental practices are employed during the construction period.
The EIA requests monitoring of a) macrobenthos organisms (to establish baseline data); b) waste water quality testing as defined by national regulation of waste water discharge; c) sea quality testing as defined by the national Regulation on Dangerous Substances in Waters and Regulation on standards of bathing water on beaches, d) sediment contamination and e) noise emissions. Figure 2 includes a map that presents selected monitoring points for the proposed monitoring plan with geographical coordinates. The map proposes the following monitoring activities:

1. The monitoring of macrobenthos organisms will be performed yearly, every four years in the proposed sections PL-01 and PL-02.

2. Wastewater quality testing will be performed quarterly annually at the following locations: (i) at the outlet of the wastewater treatment plant for oiled waters, section S-4; (ii) at the water/oil separator settling tank discharge for storm waters drainage system, sections S-1, S-2, S-3 and S-5. The required quality indicators (SS, COD, BOD₅, total oil and grease, mineral oils, anionic detergents and non-ionic detergents should comply with the limits presented in Table 3.

3. Sea water quality monitoring will be performed at the station KV 1 (left from the Terminal) and at the station KV 2 (right from the Terminal) Such monitoring will measure specific indicators for seawater transparency, temperature, salinity, dissolved oxygen, pH concentration of mineral oils, ammonia and bacteriological testing (faecal contamination indicators). The results will be compared against the Regulation on Standards of Bathing Water on Beaches (Official Gazette 33/96) and The Regulation on Waters Classification (Official Gazette 77/98) and the Regulation on Dangerous Substances in Waters (Official Gazette 78/98). The seawater quality will be monitored as follows: a) Prior to construction “zero position”, and b) During operation twice every year during summer months at bottom-dwelling (cca 30 cm from bottom) and surface seawater layer (cca 30 cm bellow surface).

4. Conditions of the seabed sediment will be tested every two years for concentration of heavy metals (lead, copper, zinc, and tin) and PAHs in surface sediment layer (0-2 cm) (at the section PL-01 for station PLS-01 and at the section PL-02 for station PLS-02).

5. The noise level will be monitored yearly by the operator in cooperation with the sanitary inspection (proposed locations are B1 and B2 as shown on the map). Noise measurements will be done according to the national Regulation on Maximum Allowed Noise Levels in Area Where People Work and Live (Official Gazette 145/2004) and against defined thresholds.

8. IMPLEMENTATION ARRANGEMENTS

PRA as investor is responsible for the implementation of the stipulated measures and monitoring plan. The mitigation measures defined in the Ministerial decision are incorporated into the location and construction permit.

During construction phase, implementation of mitigation measures is usually transferred to constructor through contract and construction permit, while the legal responsibility toward the implementation still remains with the investor (PRA). For the measurement of noise, water and waste water quality, and sediment quality, authorized monitoring companies will be contracted. PRA will decide whether the monitoring will be implemented by constructor or by PRA itself. PRA will define in the constructor’s contract the obligation for reporting. The site engineer selected as independent party will also report to the PRA for any non compliance with the decision. Inspections of the MEPPC will be conducted unannounced through site visits during construction and operation that will check compliance with the decision. PRA is obligated to provide all the requested data during
these site visits. In the case of non compliance the inspection will ask for immediate adjustment and is allowed to stop the works. The MEPPC will give final opinion on the implementation of the decision before the issuance of the use permit (a document granting the permission for use of the structure).

9. PUBLIC CONSULTATION AND DISCLOSURE

Rijekaprojekt Ltd submitted to the MEPPC an application for the preparation of the EIA for the extension and rehabilitation of Brajdica container terminal in February 2005. The EIA study included in such application was presented to the Ministry for review. A commission for quality assessment of EIA study was formed to review the study. Based on the Commission first set of comments the Ministry asked for the update of the EIA Study to eliminate identified shortcomings related to the hydrodynamics and sea quality. The Commission gave its consent for public disclosure of the study and consultation after their second meeting. The EIA study was disclosed in the city of Rijeka and on the website of the Ministry for 14-day public disclosure. The public consultation was held on September 20, 2005 in the Rijeka Municipality premises. The meeting was attended by 16 persons including representatives of city council, Faculty of Science, NGOs, private companies dealing with waste management, PRA, Civil Society for Improvement of Maritime Activities, etc. Discussions were held on the technical details related to terminal construction, the future economic growth of the port, concerns with sea filling materials, noise and air pollution during construction works. Minutes of the Meeting were recorded and are presented in Annex 2. Finally, the EIA Commission decided that the planned intervention is acceptable from environmental point of view with implementation of specific mitigation measures and monitoring actions.
Annex 1. ENVIRONMENTAL MONITORING MAP
Annex 2. MINUTES OF PUBLIC CONSULTATION

REPUBLIC OF CROATIA
PRIMORSKO-GORANSKA COUNTY
CITY OF RIJEKA
City Government Department for Development,
Town Planning, Ecology and Land Management

CLASS: 351-03/05-01/2
Ref. No.: 2170 -11-2005-3

Rijeka, 27 September 2005

COUNTY’S INSTITUTE FOR SUSTAINABLE
DEVELOPMENT AND SPATIAL PLANNING
Splitska 2, Rijeka
Attn. Mrs. Jelena Đanik

SUBJECT: RETURN OF DOCUMENTATION FOR PUBLIC CONSIDERATION AND
REPORT ON PUBLIC DEBATE ABOUT ENVIRONMENTAL IMPACT
ASSESSMENT STUDY OF TARGETED CONTENTS CONSTRUCTION OF
CONTAINER TERMINAL BRAJDIC – PORT OF RIJEKA STAGE II

Dear Sirs,

The Public Consideration of the Environmental Impact Assessment Study of targeted
contents construction of Container Terminal Brajdica – Port of Rijeka, stage II has been
conducted in the period from 14 to 27 September 2005 in the exhibition space on the ground
floor of the building of the City of Rijeka, Rijeka, Titov trg 3 and the Public Debate took place
on Tuesday, 20 September 2005 from 5:00 to 6:15 p.m.

Any written comment relating to the Study sent to the authority conducting the Public
Consideration (City of Rijeka, Department for Development, Town Planning, Ecology and
Land Management) has not been received during the Public Consideration and neither any
comment nor proposal has been recorded in the Book of Comments and Suggestions for the
Public Consideration.

Enclosed please find the following documents:

1. Environmental Impact Assessment Study of targeted contents construction of
   Container Terminal Brajdica – Port of Rijeka, stage II (2 copies),
2. Summary of the Environmental Impact Assessment Study of targeted contents
   Construction of Container Terminal Brajdica – Port of Rijeka, stage II (4 copies),
3. Book of Comments and Suggestions for the Public Consideration,
4. Resolution of the Committee for Evaluation of the Environmental Impact Assessment
   Study of targeted contents Construction of Container Terminal Brajdica – Port of
   Rijeka, stage II dated 15 July 2005
5. Report on conducted Public Debate (with enclosures)

Sincerely yours,

HEAD:
Milorad Milošević, B. Sc. (Arch.)
REPORT

ON PUBLIC DEBATE ABOUT ENVIRONMENTAL IMPACT ASSESSMENT STUDY OF TARGETED CONTENTS CONSTRUCTION OF CONTAINER TERMINAL BRAJDICA – PORT OF RIJEKA STAGE II

Pursuant to the Resolution of the Evaluation Committee for Environmental Impact Assessment Study of targeted contents Construction of Container Terminal Brajdica – Port of Rijeka stage II (hereinafter referred to as the Study) dated 15 July 2005 the Public Debate about the Study was held in the exhibition space of the City Government, Titov trg 3, Rijeka with participation of 16 persons on 20 September 2005 from 5:00 to 6:15 p.m.

The Public Debate has been announced in the daily press (“Novi list” of 6 September 2005; enclosed).

The Minutes has been taken during the Public Debate and list of present persons and arisen questions and answers during the Debate make an integral part thereof (enclosed).

Any written comment relating to the Study sent to the authority conducting the Public Consideration (City of Rijeka, Department for Development, Town Planning, Ecology and Land Management) has not been received during the Public Consideration and neither any comment nor proposal has been recorded in the Book of Comments and Suggestions for the Public Consideration.

Report made by:

Tanja Saulig

Enclosure:
1. Resolution of the Evaluation Committee for the for Environmental Impact Assessment Study of targeted contents Construction of Container Terminal Brajdica – Port of Rijeka stage II
2. Copy of Public Debate announcement in daily press
REPUBLIC OF CROATIA
PRIMORSKO-GORANSKA COUNTY
CITY OF RIJEKA
City Government Department for Development,
Town Planning, Ecology and Land Management

Rijeka, 20 September 2005, 5:00 p.m.
Titov trg 3, Exhibition space of the City Government

PUBLIC DEBATE ABOUT ENVIRONMENTAL IMPACT
ASSESSMENT STUDY (TARGETED CONTENTS) FOR
CONTAINER TERMINAL BRAJDICA

List of present persons

Full name       Legal person (company, organization)
<table>
<thead>
<tr>
<th>Ime i prezime</th>
<th>Pravna osoba (tvrtka, organizacija)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nikivo Antoović</td>
<td>Riječki Enerški paket – REP</td>
</tr>
<tr>
<td>Danica Čvorić Sedlo</td>
<td>Dvorište porijekl. Proizvodnja piva i derište iz mladina Užice</td>
</tr>
<tr>
<td>Zvonimir Jernežić</td>
<td>Hleb i piva – Rijeka Luka uprava, Rijeka</td>
</tr>
<tr>
<td>Ivan Ante</td>
<td>Europski im. Kontinenza</td>
</tr>
<tr>
<td>Sanka Vrdoljak</td>
<td>Zup. zavod za ekolične razv. Grada Rijeke</td>
</tr>
<tr>
<td>Zoran Sečer</td>
<td>INO EKO doo, Rijeka</td>
</tr>
<tr>
<td>Mladen Rotar</td>
<td>INO EKO doo, Rijeka</td>
</tr>
<tr>
<td>Rok Vucic</td>
<td>INO EKO doo, Rijeka</td>
</tr>
<tr>
<td>Bojan Marjetić</td>
<td>PMR</td>
</tr>
<tr>
<td>Tanja Saric</td>
<td>Grad Rijeka – EPZEL za urbanizam</td>
</tr>
<tr>
<td>Alekvanar Vrdoljak</td>
<td>OSH za rastuću urbanizaciju, eko logičku i gospodarsku obnovu</td>
</tr>
</tbody>
</table>

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Tel. +385 1 200 24 20, Fax. 209 451
www.rijeka.hr
E-mail: urban@rijeka.tel.hr
MINUTES
PUBLIC DEBATE ABOUT ENVIRONMENTAL IMPACT ASSESSMENT STUDY (TARGETED CONTENTS) FOR CONTAINER TERMINAL BRAJDICA

Venue: Rijeka, Titov trg 3, Exhibition space of the City Government

Date: 20 September 2005, 5:00 – 6:15 p.m.

Number of present persons: 16

List of all present: enclosed

Course of Debate

Ms. Sanja Saulig, collaborator for nature conservation and environment protection at the City Government Department for Development, Town Planning, Ecology and Land Management conducted the debate and took the minutes and aside from her, the same Departed was represented by Mr. Bojan Bilić, coordinator for Urban Master Plan for the City of Rijeka.

Initially was stated that the Evaluation Committee for Environmental Impact Assessment Study of targeted contents Construction of Container Terminal Brajdica – Port of Rijeka stage II (hereinafter referred to as the Study) made in the meeting held on 15 July 2006 in Zagreb in view of evaluation of the Study the Resolution establishing that the Study contains all substantial elements for adopting the evaluation on plausibility of the project and passes it to the Public Consideration and Public Debate.

Introductorily was stated that the Study vehicle is the Port of Rijeka Authority represented in the Public Debate by Mr. Davor Iğman and Mr. Ante Linić.

The Study was briefly presented by Mr. Aleksandar Marković, Team leader for Study development from the company Rijekaprojekt d.o.o. He emphasized initially the purpose of the project in terms of development of the Rijeka Port as the biggest port in the Republic of Croatia. The successive project is continuation of the 1st stage of container terminal development (reconstruction, construction of two bridges, machinery) whereas filling has been planned for the 2nd stage, i.e. construction of pier wide 300m. Later on is planned to release the Brajdica and relocate the terminal to a new location.

Further on was communicated that the Preliminary design has been drawn up based on which development of this Study has taken place. The Study self was subject to two sessions of the Committee – in the first session the comments were outlined and upon the second one, after comment has been embedded in, the Study was passed on to the Public Consideration and Public Debate.
There are three major impacts of the project implying placing of concrete blocks (quantity 800,000 m³):

1. Air, flora and animal life impact – there is no life in the project area on seabed;
2. Waste water impact – there is municipal and port sewerage system on the project area that has to be controlled;
3. Traffic impact – present turnover on the Container terminal is 60-70,000 TEUs and it is approaching the figure of 100,000 TEUs per year. The road D404 shall be constructed on the project area and it shall release the town from trucks traffic (trucks shall have direct connection from Container terminal to the mentioned road).

The question being facing is what is going to be changed? Monitoring of changes has been stated as the final result of the Study in the order: noise, sanitary soundness of the sea, monitoring of flora and animal life, waste water quality and testing of sediment and heavy metal condition once or twice a year.

Ending the presentation Mr. Marković concluded that the confirmation of the relevant Ministry has been received confirming that the construction of the Container terminal Brajdica, stage II is in accordance with existing plans relating to special planning.

Upon presentation, questions and statements of the participants in the Public Debate have arisen as follows:

1. QUESTION put by Jasna Rotim Malvić, Art Historian Union
   What does it mean that this terminal solution is temporary?

   ANSWERS
   Bojan Bilić, City Government Department for Development, Town Planning, Ecology and Land Management
   The Physical Development Plan for the City of Rijeka as well as the Urban Master Plan for the City of Rijeka have foreseen the extension of urban facilities on this location.

   Sanka Vrdoljak, Ekoplan d.o.o. Kostrena
   According to the Physical Planning Strategy of the Republic of Croatia, set out by the Ministry this project complies with spacial-planning documentation in which the port is planned on this location until the year 2015. Urban facilities have been foreseen on this part of the city upon terminal shall be relocated to the West part of the city.

2. QUESTION put by Marin Kirinć, Natural-science Museum Rijeka
   Does the Study consider the economic cost-effectiveness?

   ANSWER
   Aleksandar Marković, Team leader for Study development, Rijekaprojekt d.o.o.
   At the time being not, but 20 years ago, the study has been developed and in it has been indicated when it has to be started with the 2nd of the construction.

3. QUESTION put by Marin Kirinć, Natural-science Museum Rijeka
   Extension of the terminal shall increase container capacity, does it mean that the turnover shall grow 2-3 times?

   ANSWER
   Aleksandar Marković, Team leader for Study development, Rijekaprojekt d.o.o.
   Turnover shall increase by 30-40 %. Now the turnover amounts 60-70,000 TEUs per year and when 100,000 TEUs shall be reached, the economic cost-effectiveness shall take place.
4. QUESTION /STATEMENT, Milivoj Antolović, Ecological Movement of Rijeka
The Zagreb pier should be prepared for relocation of the terminal already by that time. In this way, the beach would be preserved.

Aleksandar Marković, Team leader for Study development, Rijekaprojekt d.o.o.
I agree.

5. QUESTION put by Daina Glavović, Art Historian Union, Pro Torpedo Rijeka
How does the growth been foreseen in the next 5 years? Is it realistically to expect an abrupt growth?

ANSWERS
Aleksandar Marković, Team leader for Study development, Rijekaprojekt d.o.o.
Trend of growth and increase of container terminals especially transit-containers is in progress in the whole world. This brings a solid income that has to be seized. Today is the Port of Rijeka a port of departure for two operators.

Ante Linić, Port of Rijeka Authority
The Container terminal has experienced various operating phases during the 30 years. Before the War, in the year 1989 the turnover was 55,000 TEUs per year to suffer an abrupt decline in the year 1990. In the last 3 years, a leap forward has been recorded. The offers for the Port of Rijeka are submitting and the present turnover is 70,000 TEUs per year fulfilling completely the capacity of the 1st stage. A problem of space for big vessels (3rd and 4th generation with capacity of several thousands containers) has arisen. There is a lack of space, quay is too short and too shallow (11.5 m). Collaborators are asking for special deadlines. The economic sustainability exists and the quay shall be full of activity. Funds from the World Bank’s project have been used for the 1st stage of construction. In 15 years, there are already foreign companies interested in containers on the Zagreb pier.

6. QUESTION put by Marin Kirin, Natural-science Museum Rijeka
Can you explain the green broken line on the graph? Does it mean extension in case the Zagreb pier shall fail as project?

ANSWERS
Davor Rigman, Port of Rijeka Authority
No, this is the border of the port area.
Aleksandar Marković, Team leader for Study development, Rijekaprojekt d.o.o.
For the time being, the terminal is where it is.

7. QUESTION put by Marin Kirin, Natural-science Museum Rijeka
What is with contour lines on the graph? Does it mean that filling shall take place here? Please to explain.

ANSWER
Aleksandar Marković, Team leader for Study development, Rijekaprojekt d.o.o.
It refers to the road D404. The Plan is abrogated due to the “ZOP” decree. The City is planning to locate marina on this location and the City shall decide what to do with this.

8. QUESTION put by Marin Kirin, Natural-science Museum Rijeka
Does this sea area appertain to maritime domain?

ANSWER
Aleksandar Marković, Team leader for Study development, Rijekaprojekt d.o.o.
This red line is the limit of project impact, construction objective and extension of the terminal 2nd stage. The green line is an unbuilt area (beach).

9. **QUESTION /STATEMENT, Miodrag Milošević**, Society for Maritime Affairs Promotion
We agree with the port development, but not at any cost due to consequences. Sea filling underneath the Sušak is a large infrastructure project that may not be temporary. The sea is here already dead. What happens and what are possible excesses? There are following problems:
- noise in Sušak – noise pollution
- light in Sušak – light pollution
- loss of material value of property.
What does it mean “to take only 300 m from the sea”? What is the cost-benefit for the City? Is it cost-effective with respect to environment and citizens?

**ANSWERS**

**Aleksandar Marković**, Team leader for Study development, Rijekaprojekt d.o.o.
It needs preserving, but how, why and how much. Referring to noise, this is an old noise. Taking the port capacity increase into consideration we are speaking about new jobs. Referring to cost-benefit, we must take into consideration that the whole Rijeka is built on springs. How much is this cost-effective?
To regret of Sušak the sea is already dead long ago. In technical aspect, the conditions here are not favorable for location of marina.
Referring to light pollution, the whole town emits light and terminal lighting must be roofed over, what it is.
Construction of the road D404 shall direct the transit traffic directly from terminal through the tunnel and outside the city.
In addition, the machines must be maintained. Also all measurements are prescribed that have to be taken with all parameters.

**Bojan Bilić**, City Government Department for Development, Town Planning, Ecology and Land Management
The east part is foreseen for marina.
Filling shall take place according to the “ZOP” Decree. Filling is accepted in terms of all ecological aspects.

10. **QUESTION** put by **Marin Kirin**, Natural-science Museum Rijeka
**Shall filling take place permanently?**

**ANSWER**

**Aleksandar Marković**, Team leader for Study development, Rijekaprojekt d.o.o.
The sea shall be filled. After filling, there is no life in the sea for sometime, but the life has to be restored. Therefore, the monitoring shall take place.

11. **QUESTION /STATEMENT, Marin Kirin**, Natural-science Museum Rijeka
The filling takes place with inadequate material for already two months – trucks full of soil are coming unloading the cargo into the sea!
There is a term SUCCESSION in the biology meaning that the sea can be revived. If filling is carried out with an inadequate material, no succession can occur!!!
WE ARE ALREADY DOING THIS WITHOUT THE STUDY!!!
The sea is dead because works are carried out. Illegal actions are carried out. Content of clay in material for filling must not exceed 5%, and filling take place with soil.

12. **QUESTION - Miodrag Milošević**, Society for Maritime Affairs Promotion
**Has this project been implemented according to the Physical Development Plan of the County or of the City?**
The port area has been defined by the Government of the Republic of Croatia pursuant to the strategy of the Country. According to the Spatial Plan of the County, the port structure includes 4 basins. The green line represents the port area according to the strategy of the Republic of Croatia. Planners make decisions and this is a questionable system. Everything is on government’s level (through the State Strategy). Local authority decides about purpose of the space and the County has a structural role.

13. QUESTION - Miodrag Milošević, Society for Maritime Affairs Promotion and Milivoj Antolović, Ecological Movement of Rijeka
Is this of the City or of the County?

ANSWER
Vlatko Šuperina, County’s Institute for Sustainable Development and Physical Planning
Nobody changes the green line.

13. QUESTION put by Daina Glavoci, Art Historian Union, Pro Torpedo Rijeka
What is the purpose of conducting Public debate? Does anybody look at, measure and take into consideration?

ANSWERS
Bojan Bilić, City Government Department for Development, Town Planning, Ecology and Land Management
In case of municipal plans, all questions and comments have been passed on and answers have been sent to home addresses and forwarded to the relevant instances.
Tanja Saulig, City Government Department for Development, Town Planning, Ecology and Land Management
All citizens are welcome to give their comments and questions in the Comment Book being attached to the Study submitted for the Public Consideration as well as submit their written comments and complaints to bodies coordinating and conducting the Public Consideration and Public Debate. No comment has been recorded in the Book and no submission has been received by the bodies coordinating and conducting the Public Consideration until the date of the Public Debate. All submission shall be forwarded to the Committee for Evaluation of the Study.

14. QUESTION/STATEMENT, Milivoj Antolović, Ecological Movement of Rijeka
Nobody is paying attention to the citizens. They want a beach and not a marina.

15. QUESTION - Miodrag Milošević, Society for Maritime Affairs Promotion
Was there any possibility that the Study could be contested?

ANSWER
Aleksandar Marković, Team leader for Study development, Rijekaprojekt d.o.o.
Yes, it could be contested. All is slow process and the purpose of ecology is to find a compromise solution for sustainable development. Noise at container terminal is a problem that cannot be solved.
Closing the debate, it has been told to all participants to record all comment in the Comments Book or to furnish comment or questions in written form to bodies conducting and coordinating the Public Debate and Public consideration.

RECORDING SECRETARY:
Tanja S