CROATIA – Rijeka Gateway project

Environmental Assessment Executive Summary (Update March 2003)

BACKGROUND

The ultimate purpose of the Rijeka Gateway Project is to increase the trade competitiveness of Croatia by improving the international transportation chain through Rijeka, which requires the transformation and modernization of the Port of Rijeka. This will be achieved by (i) increasing efficiency and improving financial, social and environmental conditions at Rijeka Port by preparing to privatize port operations, rehabilitating infrastructure and replacing equipment; (ii) preparing to redevelop part of Rijeka Port for urban purposes, and (iii) improving international road connections linked to the Rijeka Port, and the administration of the road sector.

The future development of the Port of Rijeka requires that current insufficient and inadequate traffic linkage between the Port of Rijeka and the Croatian State road system be upgraded to international traffic system standards, and that the Port of Rijeka should be modernized in order to efficiently handle cargo and container traffic.

The improvement of the port’s operating efficiency implies the construction of new and rehabilitation of existing infrastructure that will provide adequate connections between the Port of Rijeka and the national and international traffic network. This requires the construction of the eastern part of Rijeka Bypass road (section Orehovice - Dragu - Sv. Kuzam of road D-8), a connection road between Bradjica - Dragu (Road D-404 from the container terminal to the Rijeka eastern bypass), and the rehabilitation of the bridge to the island of Krk (Krk most). In order to improve and reconstruct the port’s infrastructure, some major construction works have been planned. This refers to the reconstruction, as well as the construction of a new terminal on the current Zagrebačko berth and various other construction works for handling general cargo in the western part of the port.

The long-term vision of the development of the Port of Rijeka is related to the long-term strategy of the development of the Croatian traffic system and the role of to be played by Croatia in connecting Central Europe and the Danube Region with the Mediterranean and the World. The role of the Port of Rijeka should in the long term be considered in light of its future role within European traffic corridors (corridor Vb) as one of the major port in the North East Adriatic Range. In the long term, when Croatia becomes an EU member, the Croatian economy and its transport system will formally become an integral part of the EU transport network. The development of the Port of Rijeka will then depend to a large extent on the role and significance of transit traffic, which Croatia as a member country will be able to attract. A long-term vision of the development of the Port of Rijeka should also be considered in the context of the construction of modern railroad communications from Rijeka to Zagreb and from Rijeka to Istria, as well as in the context of the construction of the Adriatic railroad.

In the light of the problem of the integration of the Port of Rijeka into the transport system of the Republic of Croatia, it is easy to see that the past traffic position and the development of Croatian regions have not resulted in satisfactory internal connections between all parts of Croatia, especially between the Adriatic and the Pannonian regions. The Port of Rijeka is neither adequately integrated into the Croatian State road network, nor into the road network of the neighboring Slovenia and Italy. The Port of Rijeka is practically, in its most important central part, an integral part of the city center. Due to this, the Port has to use already congested city
center streets for a major part of its traffic. The basic road connection between the City of Rijeka and the network of city streets, but also the most important State roads, is the Rijeka Bypass road (part of road D-8). The only section that has already been constructed is from the Škurinje Junction (with the highway to Zagreb) toward the west to the crossroad with the road leading to the Učka Tunnel. A minor part of this road has been constructed as a dual carriageway highway and a major part as a three-lane two-way road, or a road with one carriageway and two traffic lanes for two-way traffic.

Due to the fact that the Bypass road section from the Škurinje Junction to Bakar and Cnkvenica (D-8) has not been constructed yet, the center of Rijeka is loaded with city and inter-city traffic (connections between Opatija and the eastern parts of the City and Kostrena, Bakar, Krk and Crikvenica).

A key external factor of the development of the Port of Rijeka is the construction of the Rijeka Bypass road from the Škurinje Junction to the east. It would, together with the construction of the main city connecting road D-404 (GMC 105) from Delta area to the Rijeka bypass road, provide a good connection between the warehouse/industrial zones of Škriljevo and Kukuljanovo on one side and the city center and the Port of Rijeka on the other.

PROJECT DESCRIPTION

Three main components have been considered as parts of the Project (port, communications and bridge) on which certain interventions will be made in order to ensure higher efficiency of the Port of Rijeka. Interventions refer to recovery works/maintenance, reconstruction, some demolition and, as major interventions into space, construction:

**Port of Rijeka:**
- Western terminal-Zagrebačko berth (includes reclamation works, the construction of one berth, demolition of unused warehouses, construction of new shelters for wood storage, new yard pavement, and rehabilitation of operational road and rail networks),
- Bečko (Vienna) berth – rehabilitation of the existing infrastructure,
- Redevelopment in the Delta and Porto Baros Areas

**Communications:**
- D-8, eastern Rijeka bypass roads, construction of the section Orehošica – Sv. Kuzam – D-404, connection road Draga – Brajdica (construction from the container terminal to the eastern Rijeka by-pass)
- Elimination of the most critical “black spots” in Croatian national road network

**Bridge**
- Krk bridge – rehabilitation works

1. **The Port Component**

1.1. **Zagrebačko Berth**

The planned intervention, i.e., the construction of a new Zagrebačko berth constitutes the first step for the extension of the western part of the port, in compliance with the recently approved Port Master Plan. The construction of the Zagrebačko berth is closely connected to the overall technological, spatial and traffic restructuring of the Port of Rijeka which creates the conditions for moving a number of port activities from the immediate city center and providing space for new, commercial facilities in the very city center. These facilities are not included in the Project.

This component of the project will provide:
- 250 meters additional berth capacity, which will operate the largest ships in the North East Adriatic Range up to 60,000 Dwt and 15 meter draft, i.e., with no draft limitations.
- New storage and manipulation (handling) area of about 22 ha, which will be used as outdoor warehouses for general cargo of up to 2 million T/year capacity and for the container terminal of about 1 million T/year capacity.
- Direct connection of the cargo port with the Rijeka Bypass through D-404 towards Zagreb, Trieste (Italy), Ljubljana (Slovenia) and Split, which will be achieved by the construction of a tunnel in the center of Rijeka.
1.2. Bečko (Vienna) Pier
Planned repair work of infrastructure will be performed on the existing areas without change in their use.

1.3. Redevelopment of the Delta and Porto Baroš area
As a result of the transfer of all cargoes of timber and lumber to the western part of the port (Zagrebačko multipurpose terminal) and removal of existing wood storage warehouses, fencing, and all unused quay cranes, including those on the breakwater, the space will be made available for the development of the city toward the sea. Future development activities are not included in the Project.

2. The Road Component

2.1. D-8 State road, Oreškova – Sv. Kuzam Road Section
The State road D-8 is a part of the road network, which is of wider European importance and therefore included in the European Road Network. They are:


The existing route of the Adriatic Tourist Road through Rijeka will be replaced with a highway whose route bypasses the City following its longitudinal form of Križiće – Oreškova – Matulji. On the Oreškova – Matulji – Rupa highway there are junctions planned for integration of City road network of which the following ones are relevant for this Report:

- "Oreškova” Junction - to connect the City center and the Port to the beltway. Indirectly, a few City suburbs are connected to the same junction as well.
- "Draga" Junction - by which Sušak and Kostrena are connected to the junction through the "Eastern Exit" (tunnel connection of Brajdica – Plumbum and a new Plumbum – Draga road).
- "Sv. Kuzam" Junction - to which the Port industrial area and the new industrial zone of Kukuljanovo – Cernik are connected. The villages of Krasica, Praputnjak, Škriljevo, and Kukuljanovo are connected to the eastern junction.

2.2. D-404 (GMC 105) State road, Draga – Brajdica Connection Road
The State road D-404 (GMC-105) is planned to pass the area of the Rijeka City and the area of Sušak respectively (SE part of the Rijeka City). The route D-404 (GMC-105) runs from the Mrtvi canal bridge that crosses Delta, then a new bridge on the Rječina River across Brajdica (north of the railway station and parallel to the railway). Almost the entire length of the road route in the area of Peezine and Donja Vežica is laid in the tunnel. Two tunnels are planned: Peezine tunnel (1300 m long) and Bobova tunnel (200 m long) When it leaves the tunnel the route runs through an undeveloped area below the settlements at Vežica, that is on the southwest slope above the Martinšćica Cove (parallel to the Draški Potok stream) to the Draga area, where it connects to the Draga Junction of the future Adriatic Highway (road D-8).

2.3. Black Spot Elimination
Overall about 147 critical black spots have been identified in the Croatian national road network, leading to large economic and human losses. The project will eliminate about 30 of these black spots through (i) traffic management improvements; (ii) design improvement, or through (iii) combined civil engineering-traffic measures. These activities will not lead to any environmental impact.

3. The Bridge Component
Krk bridge (the bridge to the island of Krk) is a part of the State road system and also a part of the traffic connection system among the parts of the Port of Rijeka. In addition to the road traffic running across the bridge, there is an oil pipeline laid in the bridge. The bridge is currently subject to maintenance works, that is the refurbishment and protection of the reinforced concrete structure of Sv. Marko bridge section (a small arch of the Krk bridge toward the island of Krk). This activity will not lead to any environmental impact.
ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL STUDIES. Evaluation of environmental, cultural, and social issues have been an integral part of planning and design studies undertaken by the Government to support identification, preparation, implementation, and operation of the different Project components in order to not only arrive to the least cost solution, but also to ensure that the least impact on environment, cultural heritage, and peoples life is caused by Project implementation.

The Environmental Impact Studies (EIS) for the Road Components were performed in 1986 and 1994, and for the overall development of the Port of Rijeka, which goes far beyond the Port Component included in the Project, an EIS was carried out during the period 2001-2002.

In order to confirm that these studies also complied with the requirements under World Bank guideline OP 4.01, an Environmental Assessment covering all activities under the Project was performed by the Croatian firm URBING, including also an Environmental Management Plan (EMP).

POLICY AND LEGISLATIVE FRAMEWORK. The system of physical planning in Croatia is regulated by the Law on Physical Planning as a principal law. This law imposes the obligation to prepare physical plans of various levels and scope. Physical plans on higher level determine strategy and concept of development, while physical plans on lower level determine further conditions for physical planning. The standard method of making and elaborating physical plans (physical planning documents) is determined by the Law on Physical Planning and the Rule Book on the contents, criteria for map projections, required spatial indicators and the standards of physical planning studies.

All Project components are prepared in accordance with the relevant physical planning documentation: (a) Physical Planning Program of the Republic of Croatia; and (b) the Physical Plans of the County of Primorje-Gorski kotar.

Every intervention in space is carried out in accordance with physical planning documents, special regulations and the location permit. The location permit is an administrative document issued on the basis of the physical planning documents and special acts and regulations based on relevant legislation. The Ministry of Environmental Protection and Physical Planning issues a location permit for the structures of special national interest and for interventions in space based on the presented documents including the EIS.

The Project components: Port – Zagrebačko berth, roads – state road D-8 (Orchovica-Draga-Sv. Kuzam section) and state road D-404 (Draga-Brajdica) are spatial interventions that all have already undergone legally prescribed procedures for the defining and approval of locations.

The building permit is a legal document (administrative decision) on the basis of which the construction of a structure can be initiated. It certifies that the general designs, as well as basic, conceptual design are drawn up in conformity with regulations and requirements/conditions a structure in a certain approved location has to meet. Shortly, it confirms that all the construction prerequisites are met. The Construction Law regulates the building permit issuance.

Project components: Port, state roads D-8 (Orchovica - Sv. Kuzam section) and D-404 represent significant spatial interventions and are subject to location and building permits.

In view of their significance and possible environmental influences, the environmental impact assessment (EIA) procedure must be carried out before the location permit is issued. This procedure has been carried out through elaboration of various documents (titles and contents of these documents are in conformity with the requirements of laws and regulations in force at the moment the documents were elaborated). On the basis of an EIA and definition of necessary measures aimed at preventing adverse environmental impacts and environmental monitoring programs, the competent government bodies have accepted the proposed spatial interventions and issued the relevant permits.
CONFORMITY OF THE PROJECT WITH PHYSICAL PLANNING DOCUMENTS

As already mentioned, for each spatial intervention a location and/or a building permit, respectively, is necessary. The Project components considered are spatial interventions that have undergone all legally prescribed procedures for the definition of locations.

<table>
<thead>
<tr>
<th>COMPONENT OF THE PROJECT</th>
<th>PLANNED ACTIVITIES</th>
<th>ENVIRONMENTAL IMPACT</th>
<th>LOCATION PERMIT</th>
<th>BUILDING PERMIT</th>
</tr>
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<tr>
<td>PORT</td>
<td>ZAGREBAČKO BERTH</td>
<td>CONSTRUCTION</td>
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<tr>
<td></td>
<td>BEČKO (VIENNA) BERTH</td>
<td>REHABILITATION</td>
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<td>NO *</td>
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<td></td>
<td>REDEVELOPMENT OF DELTA AND PORTO BAROŠ AREA</td>
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<td>COMMUNICATIONS</td>
<td>STATE ROAD D-8, SECTION</td>
<td>CONSTRUCTION</td>
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<td>OREHOVICA – SV KUZAM</td>
<td>**</td>
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<td></td>
<td>STATE ROAD D-404, CONNECTION ROAD</td>
<td>CONSTRUCTION</td>
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<td></td>
<td>DRAGA – BRAĐICA</td>
<td>**</td>
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<td>ELIMINATION OF BLACK SPOTS ALONG NATIONAL ROADS</td>
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<td>RECONSTRUCTION/M MAINTENANCE</td>
<td>NO *</td>
<td>NOT REQUIRED</td>
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</table>

* EA prepared and approved by the Government
** Activities included in the EMP.
*** Permit already obtained. Permit will be issued when the main design is approved. Detailed design will be started as soon as the Building permit has been obtained, which design does not need any further approval.

PARTICIPATORY APPROACH. As mentioned in previous chapter, the EIAs for the Road Components were prepared in 1986 and 1994 respectively, and at that time public consultations were not required by law. However, the public was actually invited to comment on the plans for the proposed road constructions related to the Road Components D-8 and D-404. In addition an extensive exhibition of the plan including the road components D-8 and D-404 took place during November 11, 1998 – January 31, 1999, when the public could review the plan including all documents, and also meet with team and authorities responsible for the plan.

Concerning the Port Component, a public consultation was held in February 2002.

An overall public consultation for the whole project took place on January 15, 2003, and the EA, EA-Summary, and the EMP were made available to the public for comments. The documents were then made available for further comments during an additional seven days. However, no comments were received during this time.

POTENTIAL ENVIRONMENTAL IMPACTS AND PLANNED MITIGATION MEASURES RELATED TO PORT COMPONENT In order to modernize the Port of Rijeka, the Project will finance activities to enable a more rational and efficient handling of cargo. These activities comprise the demolition of all warehouses on the Delta and Porto Baroš areas in the eastern part of the port, and use the Zagrebačko berth for the future storage of untreated lumber and timber, currently stored in the Delta and Porto Baroš areas. The
warehouses on the western part of the port are not used anymore as most of them are in advanced state of degradation, and will all - except two which will be rehabilitated under the project for their architectural value - be demolished. In addition, the Project will finance the repair of infrastructure on the Bec berth, in particular the municipal storm water system, which is passing through the Bec berth before discharge into the sea. The major part of the demolition material and soil from excavations will be disposed directly into the sea, in order to reclaim land for the future expansion of the Zagrebačko berth in accordance with the physical plan for port development.

Environmental issues have been identified in regard to the use of asbestos material for roofing and side walls on some of the buildings, and part of the soil in some locations have been identified to have unacceptable levels of heavy metals and oil. All asbestos containing material will be separated and disposed at a special landfill in accordance with the Croatian legislation, and soil and demolition material having unacceptable levels of heavy metals and oil will be handled as hazardous waste and directed to a special hazardous waste management facility in accordance with Croatian legislation.

The remaining material is regarded as inert, and will be disposed in the sea directly adjacent to the Zagrebačko berth. The only expected effect of the disposal will be an increased turbidity from loose material, which could increase the level of suspended material. In order to mitigate that effect, a geo-membrane will be placed from the surface to the bottom, and fully cover the vertical area. The geo-membrane will serve as a filter for the suspended solids, and reduce/remove an increased turbidity in the sea. It should be mentioned that the concentration of heavy metals in the soil to be disposed in the sea is on the same level as soil acceptable for agricultural purposes, and the concentration of metals in the building material is in par with background values for construction material, gravel and rocks. The disposal of this material is therefore not expected to cause any negative effect on the sea water.

It should be mentioned that the current handling of grains and cereals in the Port, leads to emission of particulate matters when the products are transported to and unloaded from the existing silos. The Rijeka Port Authority has already procured air control equipment in order to eliminate the emission of particulate matters from the silos, and the Project will finance covered conveyer belts for transport the grains between the ships and the silos. In addition, the Project will finance equipment for facilitating separation of different waste generated in the Port and from ships arriving to Rijeka, as well as equipment for abating eventual oil spillage in the harbor.

**POTENTIAL ENVIRONMENTAL IMPACTS AND PLANNED MITIGATION MEASURES RELATED TO ROAD COMPONENT D-8.** The section Orehovica-Sv. Kuzam, of the state road D-8, also called Rijeka Bypass Road, will pass through a mainly agricultural area used for summer gardens, which area also serves as a catchment area for drinking water supplies. The construction of the road will lead to increased noise levels and the risk for pollution of the groundwater is imminent.

In order to mitigate these effects noise barriers as well as green screens of trees will be established along those stretches of the road where needed, and a water tight system for collection of run-off water (storm water) and eventual spillage of oil, hazardous material, etc. will be built along the whole road section. The collected water will be diverted to a treatment plant, and treated before its discharge into the sea. The plant is equipped with a buffer tank, in order to make it possible to collect spillage from a vehicle carrying liquids needing additional chemical treatment before its discharge. The buffer tank also provides the possibility to collect the liquids for recycling.

**POTENTIAL ENVIRONMENTAL IMPACTS AND PLANNED MITIGATION MEASURES RELATED TO ROAD COMPONENT D-404.** Road D-404 (GMC-105)) is a road that represents a consistent solution for one of the transversal - longitudinal routes derived from the global traffic system of Rijeka. This is a road running from the National Theatre in Rijeka across Brajdica container terminal, through the tunnel of Pešine, to the point below Gornja Vežica where it connects to the highway system at the Draga Junction. Its traffic function is to collect and direct the traffic running through the City from the industrial zone and the Port towards the Draga Junction and towards Kostrena and eastern coastal zones. At the higher level of traffic functions this road connects Sušak and Kostrena. The current traffic runs by the Franjo Rački Street,
street with high slopes and sharp curves going through the very heart of the City and causing jams and environmental pollution, and yearly several severe accidents.

The D-404 (GMC-105) road eliminates all these problems. Going through the Pexine tunnel, this road will free Sušak from the transit traffic. The D-404 road is functionally an optimal solution of a transversal direction that connects the coastal belt of the City and the City bypass road. It is also a good solution of a primary coastal traffic corridor that runs westward from the National Theatre building by Ivana Zajca and Riva Streets, and as such is justified for realization.

The construction of the D-404 road is a long-term solution for the traffic in Sušak. In addition to a good and the shortest connection between the Vežica residential area (21,000 inhabitants) and the City center, and the connection of Rijeka WTC building to the City express and inter-regional roads, the existing and future City zones will benefit from this solution in many ways.

Measures to mitigate the environmental impact will be similar to those mentioned for road D-8. In view of that D-404 is passing through an area of large importance for supply of drinking water, the construction work will be limited during periods of high precipitation to avoid creating turbidity in the well water and during the whole construction period the presence of geo-hydrological expertise will be mandatory, and a continued monitoring of the groundwater will be carried out.

Substantial environmental and other benefits will result from the construction of D-404:

- The streets will be relieved of the transit traffic burden.
- The streets will be relieved of heavy truck traffic, which is rerouted to D-404 road.
- Current negative impact from the traffic is reduced: noise, air pollution, landscape impair.
- Higher safety of the participants in traffic.
- Improvement of the city traffic efficiency (pedestrian and buses) because the streets are relieved of heavy traffic.
- Shorter travelling and higher economic efficiency of the entire traffic system.

POTENTIAL ENVIRONMENTAL IMPACTS AND PLANNED MITIGATION MEASURES RELATED TO ELIMINATION OF BLACK SPOTS. The work will be mainly managerial, and will not include any changes in the road sections. Any environmental impacts are not foreseen, so this part of project is not included in the Environmental Management Plan (EMP) as described below.

TRANSPORTATION OF HAZARDOUS MATERIAL. Transport of hazardous material is in detail regulated by Law, and By-Laws providing regulations concerning type of vehicles allowed for this transport, special requirements related to equipment, type of packaging, education of drivers, manuals in case of accident, and speed restrictions. As mentioned above, the roads financed under the Project will have special collection ditches for all run-off water and spillage in case of accidents in order to prevent groundwater resources.

IMPACTS ON CULTURAL HERITAGE. The EIAs and the overall EA have not identified any objects which would cause conflict with cultural heritage related to the Road Components, but identified six old warehouses within the Port area to be reconstructed including the demolishing of buildings. These six warehouses were ordered to be temporary protected by a decision made by the County branch of Ministry of Culture on March 5, 2002.

On November 25, 2002, the Ministry of Culture revisited the previous decision of preventive protection and decided to lift the protection for four of the warehouses. The remaining two warehouses (#12 and #17) will still be protected, and it has been agreed that the funds allocated for the Port Component will also be used for rehabilitation of these buildings, which also is a covenant in the legal documents.

Furthermore, all construction works includes the risk of finding items and remains of archaeological value. Therefore the construction contracts will include special provisions regulating necessary proceedings in case of chance finds. This requirement is also included as a covenant in the legal documents.
LAND ACQUISITION. Croatian Roads has been forced to acquire additional land in order to construct the Road Components D-8 and D-404. All land required is paid in accordance with prevailing market price, and the land acquisition for section Orehovica-Draga of road D-8 is completed. Concerning section Draga-Sv. Kuzam of road d-8 and road D-404 the land acquisition is still ongoing, and compensation will be provided in accordance with the Croatian Law, which stipulates reimbursement at prevailing market price. No land acquisition is needed for implementation of the Port Component as all land belongs to the Port of Rijeka.

RESETTLEMENT. Close to the junction of roads D-8 and D-404, two families will be resettled, and an agreement has already been reached. Within the Port area, two inhabited buildings will be demolished. The buildings are currently occupied by 10 families, some living in the building for 30 years. All families have been informed for more than three years ago about the move, and will be provided apartments of at least the same size in other parts of Rijeka. It should be mentioned that according to the Croatian legislation the families will be given the opportunity to express there interest to be resettled to a certain area. All families interviewed expressed a very positive attitude to the resettlement, and a clear satisfaction with the procedures established by the authorities.

Annex 13 to the Project Appraisal Document (PAD) describes in more detail the Land Acquisition and Resettlement issues.

ENVIRONMENTAL MANAGEMENT PLAN

An Environmental Management Plan (EMP) has been prepared for each component, which can result in a negative impact during either construction or operation, and requires a continued monitoring. The following activities are regarded to have no environmental impact, and therefore an EMP concerning these activities has not been prepared:

- Rehabilitation of Bečko (Vienna) berth
- Elimination of black spots
- Rehabilitation of Krk bridge

The EMP for the remaining Project components defines all activities which require recording and monitoring, identifies responsibility for supervision and implementation of the EMPs, training needs, and reporting requirements. Compliance of the EMP will be guaranteed by the coordinator for environmental issues within each of the involved agencies (Croatian Roads, Croatian Highways, and Rijeka Port Authority). In addition, the Rijeka County Branch of Ministry of Environment will on a regular basis control that the requirements in the EMPs will be followed, and the WB will during each supervision mission control that all requirements are fulfilled.