

*Non-technical Summary*  
*Environmental and Social Impact Assessment (ESIA)*  
*M6-M60 Motorway, Hungary*

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**1**

**INTRODUCTION**

The European Bank for Reconstruction and Development (EBRD) is considering the financing of Sections 4 and 6 Szekszard-Boly (M6), and Boly – Pecs (M60) Motorway (“the Project”).

In accordance with EBRD’s Environmental Policy, the Project has been classified as A/0, requiring an Environmental and Social Impact Assessment (“ESIA”).

ERM has been commissioned by the European Bank for Reconstruction and Development (EBRD) to perform a review of the social and environmental impacts of the M6-M60 Motorway project. The EIA for the project and its subsequent amendments were completed by *UNITEC’83* in the course of 2003-2004. ERM conducted a review of the social impacts of the project in December 2007. This report presents the summary of the main environmental and social impacts of the project.

## 2 DESCRIPTION OF THE PROJECT

### 2.1 MAIN FEATURES OF THE MOTORWAY

The M6-M60 Motorway will allow for a fast connection between the Hungarian capital, Budapest, and the sizeable cities of Dunaujvaros, Paks, Szekszard, Mohacs and Pecs. Furthermore, the M6-M60 Motorway will provide a direct and speedy route to Croatia.

The current project includes the following two sections of the M6 motorway:

- **Section 4 between Szekszard – Boly (M6)**, length: 49 km, 2x2-lane Motorway with 5 interchanges.
- **Section 6 between Pecs (South) and Boly (M60)**, length: 30,2 km, 2x2-lane Motorway with 4 interchanges.

The preparation and oversight of the project is the responsibility of “Nemzeti Infrastruktura Zrt” (*National Infrastructure Developing Ltd., henceforth referred to as “NIF”*), a state-owned project management company based in Budapest.

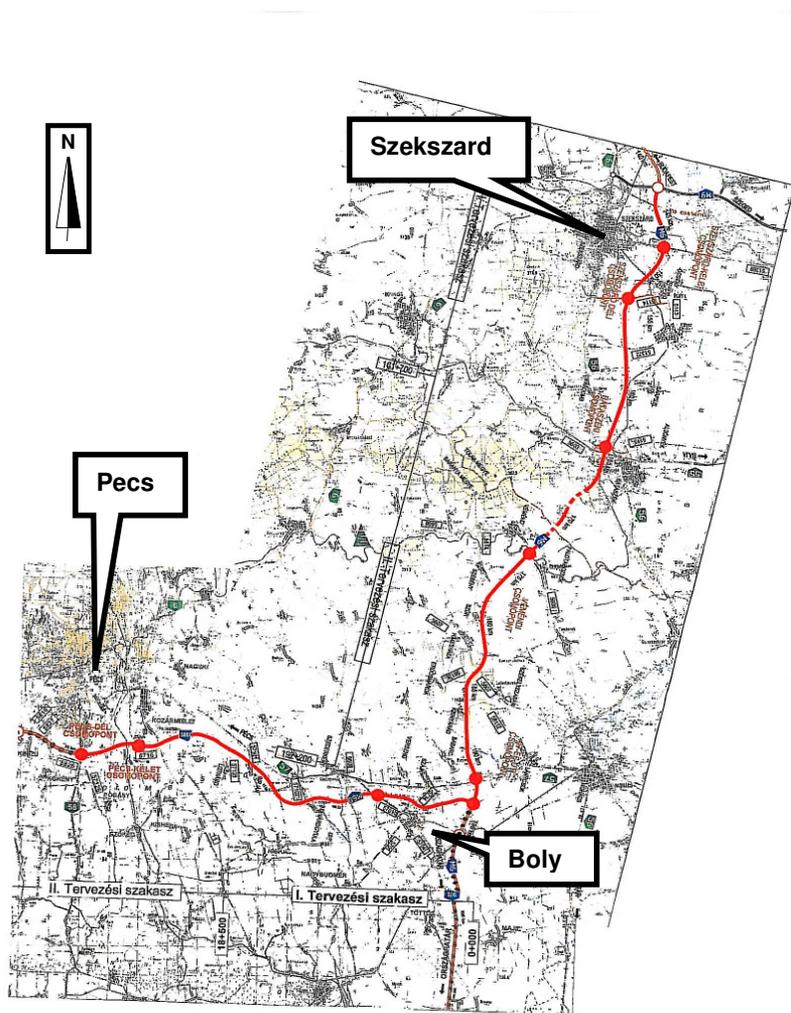
The projected date of operation for the entire M6-M60 motorway is spring 2010.

The key design features of the M6-M60 Motorway section are as follows:

- the section will be approximately 79,2 km in length;
- the motorway will be dual two-lane carriageway (4.0m x 3.75m) with paved shoulders (2.0m x 3.0m) for emergency use;
- 9 new interchanges;
- 4 tunnels (1331m, 399m, 865m, 418m in length);
- 47 built structures;
- 5 rest areas; and
- 2 motorway service points at Bataszek, and Pecsudvar.

The M6-M60 Motorway will be part of the North-South-European motorway passage. The motorway will pass through agricultural lands, forests, and marshlands. The route of M6-M60 is shown in Figure 1 below.

Figure 1 Map indicating the route of the M6-M60 Motorway



In 2004 and 2005, governmental authorities issued the necessary environmental and construction permits for the Project according to relevant Hungarian legislation.

The Ministry of Economy and Transport of the Republic of Hungary as Contracting Authority (the “Ministry”) released a request for proposals in April of 2007 for design, build, finance and operation (“DBFO”) of Sections 4 and 6 (the “Project”) on a concession basis.

The tendering process was completed, and on November 21, 2007, the Parliament of Hungary approved the appointment of *Mecsek Autopalya Konzorcium Zrt* as the general DBFO contractor for the project. The international consortium has the following members: Strabag AG, Colas S.A., Bouygues Travaux Publics S.A., John Laing Infrastructure Limited, and Intertoll-Europe Zrt.

## 2.2

### *ALTERNATIVES CONSIDERED*

Preliminary studies on route alternatives and baseline socio-economic studies concerning the M6 motorway development were prepared in 1998 and 1999. At the preliminary design phase of the project three alternatives were considered for the Szekszard-Boly section, and two alternatives for the Pecs-Boly section.

In 1999 a preliminary environmental impact assessment was prepared for the section of the highway between Dunaujvaros and the Hungarian border (which covers both sections in question of this assessment).

As a result of public consultation and reviews by governmental authorities, a single route was selected for a detailed environmental impact assessment in 2002. Separate environmental impact assessments were prepared for the Section 4 (Szekszard - border) and for the M60 section (Boly – Pecs) of the motorway in 2003 and 2004, respectively.

Further public consultations were held on the detailed EIAs in 2003 and 2004. The environmental permits for both sections were issued in 2004. Subsequently, the design was further modified to include the construction of four tunnels near to the town of Vemend, a bridge on the section between Boly and Pecs and some other minor modifications to the route. Environmental impact assessments of these modifications were conducted and the amended EIAs for both sections were submitted in 2004. The environmental permit for the final route was issued in 2006.

### 3 **KEY ENVIRONMENTAL AND SOCIAL ISSUES**

#### 3.1 **SOIL AND GROUNDWATER**

The land affected by the motorway is mainly agricultural land. Natural conditions have been largely eliminated from most of the affected regions as a result of intensive agricultural activities.

The new motorway will not have an adverse affect on agricultural drainage systems.

The four tunnels will not affect agricultural land use as they will allow existing vegetation to be undisturbed, and thus will not have a significant influence on the top soil. The tunneling method selected is the state-of-the-art methodology developed in Austria which allows for a more effective construction and less disturbance compared to the previously applied techniques in Hungary.

The groundwater in the area of the motorway is not considered to be of high sensitivity except in the vicinity of the aquifers at the Szekszard Range and at the Gemenc Nature Protection Area. The impact studies predict that there will be no significant adverse effects on the groundwater. In order to protect the sensitive aquifers the motorway sections in the vicinity of the aquifers will be constructed according to a "semi-closed design". This comprise of discharging rainwater runoff from the motorway on covered surface to a safe distance from watercourses and topsoils. In addition, special barriers will also be installed to prevent any direct soil and groundwater pollution originating from the motorway.

The implementation of the appropriate protective measures will be monitored during construction. Operational monitoring will focus on the maintenance of these measures.

#### 3.2 **SURFACE WATER**

There are six lakes and reservoirs in the vicinity of the proposed M6-M60 route. Additionally, there are more than 40 permanent and periodical water streams, all of which are a part of the Danube River drainage basin "catchment area".

The motorway – being an artificial barrier of rainwater runoff -- will moderately alter the hydrology of the area. However, the four tunnels will not notably change the runoff of surface water, which is one of their environmental advantages. Environmental assessments predicted that significant changes in hydrology would not occur.

The proposed highway will cross 8 streams. At the crossing points, bridges and adjustments to the watercourses have been designed. During construction of these crossing points special prevention measures will be applied to avoid contamination.

During operation, rainwater from the highway will be collected and pre-treated before discharged to the ultimate recipients. A schedule will be defined for the operational phase to monitor the quality of discharge from the highway.

### 3.3

#### *AIR QUALITY*

Baseline air quality monitoring was performed during the environmental impact assessment. No air pollution exceeding limit values was measured.

During construction of the motorway, increased dust levels can occur creating a nuisance in areas located close to the borrow pits and construction sites. In an attempt to reduce the number of people affected, transport routes will be selected carefully. In addition, best management practices (BMPs) will be employed to control dust emissions from construction activities.

Once the highway is complete, people living in and around settlements along roads No.6, No.61 and No.57 will benefit from a decrease in air pollution as a result of a reduced traffic on the above mentioned roads.

Air quality will be monitored during the operation of the highway according to the monitoring plan.

### 3.4

#### *NOISE AND VIBRATION*

Currently there are no notable noise emission sources along the designated area of the new motorway.

There are several noise emission monitoring points proposed along the alignment of the M6-M60 motorway.

The environmental impact assessment predicts that the new motorway will not cause a noise load higher than the limit of 65 db(A) during the day (60 dB(A) for protected areas) and of 55 dB(A) at night (50 dB(A) for protected areas), which are in compliance with the Hungarian legislation.

Several noise barriers (about 4m high) will be placed to reduce the level of noise where settlements are close to the highway route. The actual locations will be selected based on noise measurements and public consultations. Additionally, a tree-planting programme will be established to further reduce the noise impact of the motorway.

People living in and around settlements along the roads No. 6, No. 61 and No. 57 will benefit from a decrease in noise as a result of the reduced traffic.

During construction, measures will be taken to reduce noise and vibration, and working hours will be limited to daytime.

### 3.5 *ECOLOGY*

An ecological desk study of the area was carried out, and habitat surveys were undertaken in line with the General National Habitat Classification System.

The proposed routes do not cross any nature conservation area of national value except for the Szekszard-Sed NATURA 2000 protected brook which will be crossed near Szekszard. The Gemenc Nature Reserve is about 10 km away from the proposed motorway. Some nature conservation areas of local value also exist in the vicinity of the motorway.

The alignment of the motorway M6-M60 will moderately change the surrounding habitats. The transfer between habitats, flora, and fauna may be constricted by the highway. Alongside the highway, changes in vegetation and microclimate are also expected. General disturbance due to noise, traffic and human activity is predictable as well.

Habitats around the tunnels will generally have less of the above mentioned negative affects. The tunnels will help to prevent fragmentation and noise, and other general negative changes to the ecology.

Several technological solutions —such as approximately 30 game passes, 25 underpasses for reptiles, as well as 22 viaducts over nature reserves —will be applied to minimize the negative affects on the flora and fauna.

### 3.6 *LANDSCAPE*

The motorway will form a linear feature in the landscape, so the alignment of the M6-M60 motorway will change the existing view.

The landscape impacts during the construction phase will be reduced by natural and artificial visual walls which will be constructed to protect residential and tourist areas. Some adverse visual impacts will likely still exist; however they will be temporary.

The proposed alignment of the Project will mainly pass through agricultural lands. The characteristic landscape generally alternates between hills and flat land.

During operation of the motorway, the overall visually effect on the landscape will be reduced as a result of planting woods along the open road sections. The tunnels will not have notable negative visual impacts on the landscape, except for the entrances and exits.

### 3.7 **BUILT ENVIRONMENT**

The proposed alignment of the M6-M60 Motorway will mainly pass through agricultural lands, however; there are a few small settlements in close vicinity to the route.

The main impact of the new motorway will be the fragmentation of agricultural lands.

Approximately 90% of the route goes through land that is currently used for agriculture, mainly arable land and some orchards. These will be lost due to the construction of the highway. There will only be a storage building, a former pig farm, and three cottages of temporary use demolished for the construction of the highway. To abate the fragmentation, underpasses and overpasses will be constructed. Compensation for economic displacement is provided for those affected (see also *Section 3.10* below)

During the construction phase, disturbance to the cultivation of agricultural lands is projected; however, these impacts are expected to be temporary.

### 3.8 **WASTE MANAGEMENT**

The control and disposal of waste during construction and operation activities is a primary matter.

The construction company is responsible for cleaning all the sites occupied during construction activities. Maintenance activities during construction may result in hazardous waste, such as used oil, oil polluted soil, or paints remnants. These wastestreams will be collected by the construction company and disposed of in a proper hazardous waste disposal facility.

The operator company will be responsible for collecting all wastes from the highway rest stations and service stations.

### 3.9 **ARCHEOLOGY AND CULTURAL HERITAGE**

An archeological survey was completed to identify any culturally significant findings which could be endangered by the construction of M6-M60. The survey identified items which were subsequently removed from the route of the planned highway. A major finding of international importance was a Bronze Age cemetery which is the oldest and most extensive finding of its

kind in Europe. The archeological survey was executed according to Hungarian Law and it is 100% complete.

Construction activities will be monitored by archeologists so that any further findings may be identified and collected during construction.

### 3.10 SOCIAL AND COMMUNITY

Overall, the social impacts of M6-M60 Highway are mainly projected to be positive during operation. Positive economic development, such as more jobs, better access for trade, is expected for impacted communities, especially in the area of the City of Pecs. The motorway will bring the benefits of reduced environmental load to the communities that currently suffer from the adverse environmental impacts of the heavy traffic on the existing Road No. 6.

The route of the Motorway avoids residential areas, therefore the nuisance factors such as noise and poor air quality will not notably impact communities during operation.

During construction negative impacts to surrounding communities will occur, especially in relation to construction traffic, use of local access roads, construction camps, and nuisance from explosions at borrow pits. However, these impacts will be temporary, and mitigated and monitored in line with the Social and Environmental Action Plan (EASP). Construction works will provide job opportunities for local communities.

There will be 89 crossing points (for local traffic, regional traffic, railway lines, wild animals crossing, natural reserve areas, water pipes) under and above the highway, which are mitigating the negative impacts of segregation caused by the motorway.

It is assumed that the appointed construction contractor will abide by the Hungarian Employment Code, which is in agreement with EBRD's policies and IFC Occupational Health and Safety Guidelines and Good Practice on Social Dimensions of Private Sector Projects.

The route of the highway will not cross any residential housing, therefore no physical relocation of residents was required. Approximately 30 ha of land registered on nearly 2,000 plot numbers was required to expropriated. As of early December 2007 expropriation was completed at 89,7% of all the plots identified.

Land owners got financially compensated for their expropriated lands. In approximately 80% of the completed expropriation procedures a mutual agreement was reached between the State and the landowners on the purchase price. In 20 % of the cases the expropriation was executed by the

Office of Public Administration. Grievance mechanisms were in place in all stages of the procedure in accordance with Hungarian law.

The expropriation and compensation procedure has been completed in accordance with a resettlement policy framework developed based on the applicable Hungarian law. Compensation is based on replacement value, which is in conformity with Equator Principles and the World Bank Operational Directive 4.12 on Involuntary Resettlement.

### 3.11 PUBLIC CONSULTATION AND DISCLOSURE

Within the framework of project-oriented management public information and consultation are the primarily responsibility of the project management company, *Nemzeti Infrastruktúra Fejlesztő Zrt.* The company also participate in direct consultations as required, and set forth obligations to be fulfilled by the responsible designers and constructors in their respective contracts alongside with their obligations to act in cooperation with the authorities.

There were several means of public consultation and information disclosure applied in the planning and permitting phases of the project. Driven by the legislation, public consultations focused on the direct environmental impacts of the proposed motorway and only to a lesser extent covered discussions over social and economic impacts.

During the preliminary planning stages consultations were primarily held with the local governments. The prevailing legislation on environmental impact assessment required that formal public hearings were held subsequent to the preparation of the detailed environmental impact assessments.

**Table 3.11.1 Location and Dates of Previous Public Consultations**

Consultation	Location	Dates
<i>M6 access road to Pecs</i>		
DEIA public hearing	Pecs	20.10.2004
DEIA public hearing	Pecs	24.11.2004
Consultation with the local government	Mayor's Office of Bicsérd	17.05.2004
Consultation with the local government	Mayor's Office of Szentlőrinc	08.06.2004
Consultation with the local government	Mayor's Office of Királyegyháza	08.06.2004
Consultation with the local government	Mayor's Office of Szabadszentkirály	04.05.2004
Consultation with the local government	Mayor's Office of Szajk	04.09.2003
Consultation with the local government	Mayor's Office of Belvárdgyula	22.09.2003
Consultation with the local	Mayor's Office of Kozarmisleny	01.10.2003

Consultation	Location	Dates
government		
Consultation with the local government	Mayor's Office of Pelerd	22.10.2003
Consultation with the local government	Mayor's Office of Pecs	05.11.2003
Consultation with the local government	Mayor's Office of Szentlorinc	01.10.2003
Consultation with the local government	Mayor's Office of Mohacs	30.10.2003
Consultation with the local government	Erzsebet Inn, Boly	15.02.1999
Consultation with the local government	Mayor's Office of Pecs	26.05.1999
<b><i>M6 section between Szekszard and the national border</i></b>		
DEIA public hearing	Bataszek	18.10.2004
DEIA public hearing	Boly	14.10.2004
Consultation with the local government	Mayor's Office of Szentlorinc	08.10.2003
Consultation with the local government	Mayor's Office of Szentlorinc	08.10.2003
Consultation with the local government	Mayor's Office of Boly	22.10.2003
Consultation with the local government	Mayor's Office of Decs	15.06.2004
Consultation with the local government	Mayor's Office of Bataszek	19.05.2004
Consultation with the local government	Mayor's Office of Bataszek	25.10.2006

Social consultation processes during the construction and operation will be facilitated by a comprehensive process description via Internet and locally in the settlements. The actions, the sequence of actions, as well as the persons to be contacted when assistance is needed will be available to the public.

### 3.12

#### **MITIGATION AND MONITORING**

The motorway design has already incorporated elements of mitigation. These include the protective design at the sensitive aquifers, as well as the inclusion of tunnels.

Mitigation measures will be applied during construction to reduce the adverse air and noise impacts. The measures comprise of careful selection of transport routes to and from construction material sources, borrow pits and service stations, which are the responsibility of the selected construction company.

Mitigation during operation will primarily involve the construction of noise and visual barriers in the vicinity of residential and recreational areas.

Monitoring measures – as they are also described in the Environmental and Social Action Plan – will be undertaken to ensure that mitigation measures work effectively. Air and noise monitoring stations are planned along the route of the motorway.

## **INFORMATION SOURCES**

Information contained in this summary was obtained from the following sources:

- (i) the Detailed Environmental Impact Assessment for M6-M60 Motorway, Szekszard-Boly, Boly-Pecs sections,
- (ii) technical design documentation and information received directly from NIF, and
- (iii) interviews made with employees or subcontractors of NIF.

A detailed list of documents and records reviewed is available upon request.