



European Investment Bank (EIB)

Luxembourg, 24th August 2018

Environmental and Social Completion Sheet (ESCS)

Overview

Project Name:	Airport Expansion Zagreb
Project Number:	20110466
Country:	Croatia
Project Description:	Expansion of Zagreb Airport with the construction of a new passenger terminal building together with associated landside and airside infrastructure increasing capacity from 1.5 to 5.0 million passengers per year.

Summary of Environmental and Social Assessment at Completion

Project description

Zagreb Airport (ZAG) is the main airport in Croatia and the primary hub for the national carrier Croatia Airlines. The project represents Phase 1 of the planned expansion of Zagreb Airport and consists of the construction of a new passenger terminal building together with associated landside and airside infrastructure. It will increase the terminal capacity of the airport from 1.5 million passengers per annum (mppa) to 5.0 mppa. The project is implemented under a 30 year Design, Build, Finance, Operation and Maintenance (DBFOM) concession.

The concession was awarded on April 12th 2012 to a consortium with the following ownership: AdP Management 20.77% (a wholly-owned subsidiary of Aéroports de Paris), Bouygues Bâtiment International 20.77%, Marguerite Fund 20.77%, IFC 17.58%, TAV Airports 15.0%, and Viadukt 5.11%. AdP Management and TAV Airports will be responsible for operating and maintaining the airport.

EIB notes the following key Environmental and Social outcomes at Project Completion.

A project of similar characteristics within the EU would fall under Annex I of the EIA Directive 2011/92/EC and require a full Environmental Impact Assessment (EIA). An EIA was carried out between July 2011 and October 2012, with the project receiving approval from the Ministry of Environmental and Nature Protection through a Decision Notice dated 12 October 2012 (henceforth the Decision Note). The EIA included a public consultation process and was carried out in accordance with Croatian environmental laws and regulations, which transpose the corresponding EU Directive(s).

Public consultation was held in July and August of 2012 and in its scope and procedures were carried out in accordance with Croatian Ordinances. The results of the consultation were reported in the Decision Note. Croatia formally joined the EU on July 1st 2013.

The project was approved subject to the application of measures of environmental protection and subject to the implementation of the proposed environmental monitoring programme. The Decision Note sets out the various protection and monitoring measures as well as the



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reasons for them, covering a range of topics including noise, air quality, landscape, ecology and heritage.

During appraisal stage aircraft noise and the assessment of the impact it had over the affected population was identified as the key environmental undertaking and the Airport operator was instructed by the Competent Authority to monitor noise on a regular basis and to make its results available to the public at large. MZLZ, the airport operator is addressing aircraft noise as follows:

- **Noise:** MZLZ, the airport operator is monitoring noise on a regular basis and the “*Summary of Noise Level Measurements in 2014, 2015, 2016 and 2017 at Zagreb International Airport*” is publicly available. In this publication, the monitoring results are presented and analysed against the current legal and regulatory framework. Additionally, a “*Noise Reduction Action Plan*” is publicly available on the airport website. In this document, there is a chapter on a Proposed Action plan for Noise reduction, which describes a number of procedures to be implemented by air traffic control, airlines and ground handling. These include: continuous descent approach, “low power - low drag” approach technique, decrease use of reverse thrust, continuous climb operation procedure, prohibition of testing of aircraft engines by night, using (Ground Power Unit) GPU instead of (Auxiliary Power Unit, from the aircraft) APU, etc..

The implementation of operating procedures such as: “Precise approach supported by satellite technology”, “Continuous Descent Approach - CDA”, “Continuous Climb Operations“, “Low Power – Low Drag“ are ongoing and are being coordinated with the Croatian Air Traffic Control (ATC). They are long term objectives. Procedures for testing of aircraft engines on the airport surfaces and Using GPU instead of APU are already implemented.

Noise level monitoring is ongoing and results are published on MZLZ web page. Passive measure such as noise barriers have been implemented. Environmental noise charges are not being implemented as noise made by civil aircraft at airport are under the levels permitted by applicable law. In case the noise monitoring determines that the levels are above the law, MZLZ may introduce an environmental noise charge penalising noisier aircraft and/ or those who do not follow noise minimisation procedures.

Additionally, during appraisal stage and following the results of the EIA, three key additional environmental issues during the project construction and airport operation were identified: air quality, water (ground water pollution) and public safety zones (protected areas at the end of the runway thresholds). MZLZ, the airport operator is addressing these issues as follows:

- **Air quality:** ZAG is an Airport Council International Airport Carbon Accreditation Level 2 airport. ACIs Airport Carbon Accreditation recognises and accredits the efforts of airports to manage and reduce their carbon emissions. There are four levels of certification: 'Mapping', 'Reduction', 'Optimisation' and 'Neutrality'. To achieve the 'Reduction' level of accreditation, an airport has to: fulfil all the requirements of Level 1 i.e. mapping of CO₂ emissions, provide evidence of effective carbon management procedures including target setting and show that a reduction in the carbon footprint has occurred by analysing the carbon emissions data of consecutive years.



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In this context, MZLZ, the operator has committed to reduce passenger terminal CO₂ emissions by 15% per sqm of ground floor area between 2015 (old terminal) and 2017 (new terminal). The new terminal was built according to LEED silver requirements. Additionally, MZLZ has committed to implement regular air quality monitoring, facilitate the reduction of aircraft emissions on the ground and to reducing ground vehicles emissions.

The airport is actively promoting emission reduction measures - who are also noise reduction measures - such as the “low power - low drag” approach technique, decrease use of reverse thrust, using APU instead of GPU, amongst others in order to maintain a good air quality at and around the airport site.

Air quality monitoring is an ongoing activity, the results are published in the webpage of the Agency for Environment Protection. All results are communicated to authorities. Additionally, the operator has the obligation to replace old (internal combustion) vehicles with new gas or electric vehicles in case PM10 (Particulate Matter under 10 micron) limits are surpassed and to develop a pollution reduction plan. MZLZ is not a major source of PM10 emissions and its emission levels are under the legal limit. In this context, MZLZ has requested changes to this regulation to the Ministry of Environment and Nature Protection and is currently waiting for feedback.

- **Water (ground water pollution):** potential pollution of groundwater was identified to be an issue during construction and operation. In order to mitigate this issue the contractor put in place a construction environmental management plan thereby avoiding soil and ground water contamination during construction.

Regarding operation, the scope of works included the construction of a new drainage system covering: i) all airside surfaces, including the existing runway, new and existing taxiways and old and new aircraft parking aprons, ii) the new terminal building, iii) new car park, and iv) the main access road. The drainage system is connected to retention basins within the airport site; from here pressure pipelines discharge clean water to river Sava and polluted water to the waste water treatment plant in Zagreb. Additionally, de-icing fluid from aircraft de-icing activities at the old and the new apron is collected.

For the activities on the west and east aprons (used by passenger aircraft) the Operator has sensors that recognize polluted water including Type I and Type IV liquids for aircraft de-icing. In the case of pollution detection, there is automatic electric motor which opens a valve and transfers the polluted water runoff to a sealed retention tank. When the retention tank is full, a specialised company empties the tank and disposes of the polluted water complying with all applicable regulations. The monitoring of waste water after treatment is ongoing. The de-icing fluids used at ZAG are Safewing type I and type IV for aircraft and Safeway for apron and runway de-icing; no urea-based fluid is used.

- **Public safety zones (protected areas at the end of the runway thresholds):** are not defined under ICAO Standards and Recommended Practices or EU regulation. In this case the revised Spatial Plan of Velika Gorica dated September 2012 incorporates the relevant applicable standard from the Croatian Air Traffic Act applicable to Croatian Airports. The Spatial Plan does not define a PSZ as such, but



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does prohibit any new construction in the Airport development zone, an area of one km beyond the runway threshold and 300 metres from the runway centreline.

The airport has implemented a risk management system based on the requirements of ISO 14001:2015, in compliance with the measures requested in the Decision Note

During the three-year construction of the new terminal, the contractors' team provided a Construction Environmental Management Plan (CEMP) defining:

- Traffic and parking management (local transport - vehicles/machineries and pedestrians passageways, direction of welfare facilities (offices, changing rooms, canteens, lavatories), delivery area, parking area...)
- protection of urban installations
- cleanliness of site and site surroundings
- waste water disposal
- regulation of loading/unloading areas
- storage areas (demarcation, signage)
- disposal of construction and other waste
- workplace safety measures
- fire protection system
- site fencing/hoarding
- protection of site and its surroundings

During the construction phase, a Construction design team from BBI was responsible for developing landscaping design including the repair of areas affected by works, creating landscape arrangements for new green areas and the management of boundary areas with the aim of restoring wet areas, channels and ponds within the airports site.

Summary opinion of Environmental and Social aspects at completion:

The Bank is of the opinion based on reports from the Promoter, inputs provided by Lenders' Supervisors and desktop analysis during Construction that the Project has been implemented in line with the Bank's Environmental and Social Standards, applicable at the time of appraisal.