



European Investment Bank (EIB)

Luxembourg, 30th November 2018

Environmental and Social Completion Sheet (ESCS)

Overview

Project Name:	Oslo Airport Terminal 2
Project Number:	20110192
Country:	Norway
Project Description:	The project concerns the extension of the Oslo Airport by expanding the terminal with new departure and arrival areas and a new baggage handling facility as well as the construction of a new pier and associated apron areas to be able to handle up to 28 million passengers a year.

Summary of Environmental and Social Assessment at Completion

Project description

Oslo Airport (OSL) is the main hub airport for Norway handling 27.5 million passengers and 243 thousand aircraft movements in 2017. It is the second largest airport in Scandinavia and one of the top-20 in Europe. The airport was inaugurated in October 1998 with an initial capacity of 17 million passengers per annum (mppa). Following minor adjustments and extensions, the capacity of the facility was set at 22 mppa. By 2011, the year of the Bank's appraisal, the airport handled 21.1 million passengers triggering the need for an expansion. Since then, passenger numbers have grown by more than 30% in six years (to 27.5 mppa).

The project consisted of phase 1 of the planned extension of OSL by expanding the existing terminal with a new Pier to the North, construction of additional departure and arrival areas as well as new baggage handling facilities and associated apron areas. The project increased the airport's capacity from 22 to 28 mppa. Some subsystems have been already been designed for a 35 mppa capacity, which corresponds to the design capacity for phase 2.

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

The project is now complete. The new part of the terminal building is certified with the "excellent" degree in "design stage" and "as built" according to the BREEAM environmental classification system. The building has also achieved passive housing standards. OSL has been a pioneer in setting environmental requirements throughout the project period, and has received a number of awards for the building. Special recognition has been received for innovative energy solutions and conscious choice of materials such as wood from local sources.

A project of similar characteristics within the EU would fall under Annex II of the EIA Directive 2011/92/EC thus requiring a decision by the Competent Authority whether or not a formal Environmental Impact Assessment process was required.



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The Competent Authority decided that an Environmental Impact Assessment (EIA) study had to be carried out for the project in accordance with the Planning and Building Act and a study programme was established in November 2007. The assessment covered the full development of Terminal 2 for up to 35 mppa i.e. already covering the subsequent phase of the terminal development, which is beyond the scope of the current project. The EIA study was under public review from November 2009 until January 2010.

The most important impact areas identified by the EIA were noise, water management and air emissions. In this context, detailed follow-up measures, including continuous monitoring and trend modelling, were agreed.

- **Noise:** Noise is the environmental issue that concerns the population surrounding the airport the most, and is the topic of the majority of the inquiries the Airport receives. The major source of noise at the airport is from aircraft during take-off and landing cycles. Through the noise prevention regulation *Forskrift om støyforebygging, Gardermoen*, OSL has adopted an advanced noise and flight path monitoring system that records and stores radar flight paths and noise data for all flights to/from Oslo Airport. Each month, the Airport management prepares a report based on registrations from the noise and flight path monitoring facility.

Along with forecasting for future traffic development and anticipated changes to the aircraft fleet, radar data from current flights provides a basis for calculating aircraft noise zones and aircraft noise maps for a few years into the future. OSL produces and maintains a map that shows the highest expected average noise contours for a 10-year period going forward. The radar registrations in the noise and flight path monitoring facility provide the necessary basis for verifying compliance with key provisions of the regulations relating to noise prevention.

- **Water Management:** Oslo Airport is located on parts of the Romerike aquifer a major aquifer that is a strategic water reserve for the Oslo region. About half of the eastern runway to the north is in contact with the part of the groundwater reservoirs that has the potential to become a future source of drinking water for the region. The airport borders three protected landscape areas. The area south-west of the airport is a characteristic ravine landscape. The rivers Sogna and Vikka are located within this protected landscape.

During construction, strict environmental requirements were imposed on contractors participating in the Terminal 2 project to prevent any emissions to soil, groundwater or river systems and to ensure that the natural water balance is maintained. The natural groundwater level has been lowered along the west runway and the railway route in order to safeguard the infrastructure. Groundwater pumped out is then released into the Sogna river or re-infiltrated into the groundwater reservoir.

In general, surface water is handled locally at the airport. The first 'wave' of meltwater contains small quantities of de-icing agent, and this is collected and treated at the local waste water treatment plant within the airport site. In the case of major run-offs, particularly during periods of significant snowmelt, there is surface water of good quality originating from the western runway reaching directly the river Sogna.

Oslo Airport engaged NGI, an independent entity, to investigate whether aircraft emissions or the use of surfactants or other chemicals at the airport affect and change surface tension in nearby small lakes (Aurtjern and Danielsetertjern).



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Measurements show no significant difference between the lakes and the control sample (running water). There was also no formate, glycol or acetate in the lakes detected.

Much of the liquid used for aircraft de-icing operations (glycol-based) are collected directly at a dedicated platform for aircraft de-icing. The proportion with the highest concentration is delivered to a local recycling plant, where it is concentrated before being transported and reused as industrial glycol. Wastewater and some of the collected de-icing chemicals are treated at the Gardermoen treatment plant.

- **Air Emissions:** Oslo Airport maps its climate impact on an annual basis in accordance with the Greenhouse Gas Protocol and the ISO14064 series and prepares a greenhouse gas inventory verified by an independent third party. The greenhouse gas inventory includes emissions linked with all of the company's own activities categorised as direct or indirect emissions, along with a selection of indirect emissions from ground sources including scope 3 emissions (Aircraft operations in the air up to approx. 1,000 m above airport level, surface access and employee commuting). Since 2006, OSL has purchased emission allowances through the UN-system to compensate greenhouse gas (GHG) emissions.

Airport Carbon Accreditation (ACA) comprises four accreditation levels: mapping, reduction, optimisation and neutrality. The ACA scheme operates using emissions categories linked with the degree of control the airport operator has over its activities. As from January 2018, 210 airports in 47 countries are now certified to ACA, of which 36 are at "Neutrality" level. Oslo Airport has accreditation at the highest level (3+ neutrality). This requires Oslo Airport reducing its own emissions from year to year (in relation to the number of passengers), taking the initiative to involve other parties at the airport in a joint effort to reduce the airport's total greenhouse gas emissions, and investing in climate quotas in order to compensate for remaining emissions. This involves having set GHG-emission reduction targets in a long-term action plan, with ambition to decouple emissions from projected traffic growth. In order to reduce emissions OSL now has implemented curved approaches to limit both noise and greenhouse gas emissions.

Oslo airport monitors air quality at different locations since its opening in 1998 and the measurements show that air quality is below the threshold set in the relevant regulations. In 2017, after complaints, emissions have been measured directly outside the arrivals hall at the terminal. In these measurements PM10 limits were exceeded four times. This was within the regulatory requirements, where exceeding the limit for PM10 is restricted to thirty (30) times in the measurement period. These issues have now been resolved.

Additional information

At a strategic level Avinor – the company responsible for the management and operation of the largest Norwegian airports including Oslo - has adopted a group-wide environmental and corporate social responsibility policy in order to create a clear, collective direction for Avinor's environmental work. Environmental management is an integral part of Avinor's management system. In March 2014, Oslo Airport was certified according to EN-NS ISO14001: 2004 and is now a part of a common Avinor certificate according to ISO 14001:2015.



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Avinor's environmental policy and strategy forms the framework for its environmental work. Oslo Airport is part of an international benchmarking where its environmental footprint against 25 similar airports, and OSL is ranked on top.

Oslo Airport is also on top in terms percentage of access by public transport (70% of passengers access OSL by public transport) and it is certified at the highest level in the European Airport Carbon Accreditation (ACA) scheme. Additionally, Oslo Airport now has solid experience with curved approaches to limit both noise and greenhouse gas emissions.

Environmental Management is an integral part of OSL's overall management system, which is based on international standards such as ISO 9001 and 14001. Details of OSL's environmental performance are published in annual environmental reports.

Summary opinion of Environmental and Social aspects at completion:

The Bank is of the opinion based on reports from the Promoter that the Project has been implemented in line with the Bank's Environmental and Social Standards, applicable at the time of appraisal.