Faculty of
Environmental Sciences

Czech University of Life Sciences, Prague

Faculty of Environmental Sciences
Department of Applied Ecology

Impact Assessment Authorization for the Export Project of

Alpaslan II

Dam and 280MW Hydroelectric Power Plant Building

May 2019

Contents:

1. The Basis for the Environmental Impact Assessment Authorization for the export project

The subject of the evaluation was the assessment the impact of "Alpaslan II: Dam and 280MW Hydroelectric Power Plant Building" in Mus Province, Turkey. The project proposer is ENERGO-PRO a.s., Palladium, Na Poříčí 1079/3a, 110 00 Praha 1, Czech Republic.
Based on studying the available background documents (especially the project type, the questionnaire for the environmental impact assessment of the export, and the previous assessment) as well as other materials on the prepared project, and with regard to a comparison with the knowledge and experience from our own practice and from the practice of other authorized persons in assessing projects of a similar type, the assessed project was put in Category A.

Three basic forms of assessment were made within project preparation: They are the following:

- Alpaslan ll and HEPP (dam and hydroelectric power plant) EIA (Environmental lmpact Assessment) along with ESMP (Environmental and Social Management Plan).
- Relocation of the road infrastructure EIA (Environmental lmpact Assessment) along with EMP (Environmental Management Plan).
- Building of ETL (Electricity Transmission Line) lnterim EIA and EMP (Environmental lmpact Assessment).

Alpaslan II and hydroelectric power plant EIA + ESMP

Alpaslan II dam and hydroelectric power plant were subjected to the EIA process with subsequent drafting of the ESMP (Environmental and Social Management Plan). The ESMP was prepared by Enerjisa for both the dam and hydroelectric power plant (HEPP) as well as for the support, especially constructional, infrastructure, such as quarries and related activities in order to meet the requirements of Turkish legislation in the area of Environmental Impact Assessment (EIA). An "EIA Positive" certificate was issued by the Ministry of the Environment and Urbanization in August 2012. The EIA documentation process was published according to the requirements of Turkish legislation.

Road infrastructure relocation EIA + EMP

As a result of the building of the dam, a large area will be flooded along with some road infrastructure, which will have to be relocated out of the reach of the water surface. In compliance with the Turkish EIA legislation, as communicated by the Ministry on 10 June 2013, some parts of the road infrastructure to be relocated were not part of the EIA process. However, in order to identify possible impacts and suitable mitigation measure connected with the relocation of a part of the road infrastructure and to meet the requirements of the EBRO (European Bank for Reconstruction and Development), Enerjisa carried out a separate EIA process for the road infrastructure relocation. The result was the EIA along with the EMP (Environmental Management Plan).

ETL building EIA + EMP

The complete EIA process for the building of the Electricity Transmission line starting at the hydroelectric power plant will be finished by TEIAS {Turkish Electricity Transmission Company) in compliance with the Turkish EIA legislation. However, interim EIA and EMP were already prepared so as to be used in the formulation of the conclusion of the assessed ESIA and the probable corridor for the power line was defined, which will be in compliance with the restrictions or specific conditions of the area in question as much as possible. The goal was to identify potential impacts connected with the building of the power line as well as a possibility of mitigating these impacts.

2. Basic Characteristics of the Export Project

General information about the project

Project type and project promoter

The project of Alpaslan II: Dam and 280MW Hydroelectric Power Plant Building will be used for power generation. The project was designed by EnerjiSA Enerji Uretim A.S (Enerjisa). Enerjisa is a leading Turkish power company owned by Haci Orner Sabanci Holding A.S and E.ON SE.

Project history

The first proposal, or more precisely, the first research into the possibility of building a dam in the location was started around 1982 by the Directorate of the State Hydraulic Works (SHW). The first planning attempts resulted in three different designs of the dam body axis, which were called Zorova, Arincik and Mercimekkale. As a result of the ongoing planning in the location for Alpaslan II dam and hydroelectric power plant, geologic expert examinations were carried out during 1990 and then they were worked up:

- Erosion and landslide risks;
- Bedrock thickness;
- Basic aggregate thickness and stability
- Engineering properties of natural building materials.

Localization

The area intended for the building of the dam and hydroelectric power plant is situated in Mus Province in Central East Anatolia, Turkey, on the Murat River, which belongs to one of the watersheds of the Euphrates. The city of Mus is situated about 30 km south upstream of the project location.

Picture 1 Project localization

Overview of the individual parts of the building site and their distance from the nearest residential areas:

Table 1 building facilities and their distance from residential areas

Project Area	Nearest Residential Area	Distance (in)
K2 Rock Material Borrow Area	Dogdap	1,470
K1 Rock Material Borrow Area	Dogdap	770
K5 Rock Material Borrow Area	Kayalidere	520
E Permeable Material Borrow Area	Kayalidere	1,450
G Permeable Materia! Borrow	Kayalidere	2,860
E Permeable Material Borrow Area	Kayalidere	1,980
C Impermeable Material Borrow	Akkonak	1,900
D Impermeable Material Borrow	Akkonak	2,390
B Impermeable Material Borrow	Akpinar	1,860
A Impermeable Material Borrow	Dumlusu	620
K6 Rock Material Borrow Area	Dumlusu	1,260
K3 Rock Material Borrow Area	Kusluk	700
Crushing-Screening-Washing Facilities	Akkonak	2,025
Concrete Plant 1	Akpinar	1,650
Concrete Plant 2	Akpinar	1,560
Concrete Plant 3	Akpinar	1,150

Non-technical Summary of the Project

The Alpaslan II dam and hydroelectric power plant (HEPP) planned by II Enerji Oretim Madencilik San . Tic. A.S., were propose on the Murat River, which is part of the Euphrates watershed, in Mus Province, approximately 34 km form the centre of the city of Mus.

The surface area of direct flooding, with the maximum projected water surface level, may reach up to 54,69 km^2. The area to be flooded consists mainly of meadows, permanent grass stands and farmed land. Besides that there are also small forests and uncultivated (succession) areas.

It is expected that 225 households in total will be directly flooded; 25 household in the area of Gocmenler {Muhacir Zorova), which is situated on the left bank of the Murat, 45 households in the area of Tepekoy; 15 households in the area of Dogdap; 50 households in the area of Bagici (Carbuhur); 50 households in the area of Asagi Hinzir in Kayalidere on the right bank; 25 households in the area of Sanlica and 15 household sin the area of Aligedik. Of course, besides the households, municipal facilities (individual areas' infrastructure), barns, sheds, small mosques and four primary schools with their public areas will be flooded, too. Purchase of this land will be preferred within project preparation.

Any procedures of expropriating the areas (land) that will be flooded during the preparation stage or during subsequent operation will be carried out in compliance with Expropriation Act no. 2942 and its Amendment no. 4650, which became effective on 5 May 2001.

When the cadastral map was consulted, it was found out that 5009.32 hectares of private land would be directly flooded and 335.40 hectares would be built up.

The project area is situated within the "First Earthquake Risk Zone" according to the Turkish map of earthquake zones prepared by the Ministry of the Environment and Urbanization. The bay of Alpaslan II is situated not far from the East Anatolian Fault Zone (EAFZ) to the south-west and from the North Anatolian Fault Zone (NAFZ) to the north-west. These fault zones, which are the largest Anatolian zones, are known as active fault systems. The dam location is 50 km from Karliova, which is a junction of these two fault zones.

Excavation work (ground work) will be done in stages, according to the procedure of damming the current river and according to the gradual building of the dam body. Suitable excavation work materials will be used as admixtures for concrete mixtures, waste dump material, etc. The rest of the material will be disposed of at landfills. A total of six disposal sites for the excavated material have been planned. The disposal sites will be flooded by the reservoir according to the project proposal.

During the excavation activities, pollution must be removed from the upper soil layer, which must then be stored in such a way that it does not lose its fertility. This topsoil will then be used for earth moving and landscaping including the planting of trees.

If thicker bedrock formations preventing work from continuing are found during land preparation, it will be necessary to use explosives to disrupt them. If the use of explosives is necessary, the regional community will be informed well in advance to that there are no risks within the detonation area. Before the explosion, sirens will be sounded to warn all the regional communities. The amount of the explosive necessary for everyday explosions will be transported to the site by lorries.

During the dam body building process, no actions must be done that might significantly influence the amount and quality of the water downstream.

Dust and gas emissions were also examined as part of the assessment of possible impact on air quality resulting from the building and operation of Alpaslan II dam and hydroelectric power plant. The emission figures were calculated with regard to the worst scenario, which equals the highest traffic intensity for which the model study was done. According to the model study, the assessed figures were determined as lower than the limit values.

In some locations of the direct flooding area there are densely forested areas. The forested areas which will be flooded by the reservoir do not consist of large or high-quality forests, so it is not expected that their logging will have any significant impact on forest management on a wider scale inside or outside the region.

Because the reservoir filling process will last a few months, it is expected that most animals will leave their habitats around the building site so as to colonize new areas within the project land, where they will not be disturbed or flooded.

Within the project building stage, water will mainly be used for technical, technological and sanitary purposes. In particular, it will be used for washing the building machinery and mechanisms, dust and pollution prevention, and drinking and sanitary purposes. For technical and technological purposes, water from the Murat will be used by being conducted from the branching canal. Drinking water must be obtained from existing springs (drinking water sources) within the existing agglomerations outside the building site. Drinking water sources will be inspected as regards their quality and suitability for human consumption.

During the building process, waste water will also be produced (corresponding to municipal waste water and polluted water resulting from building activities). This water will be treated so as to show standard levels or pollution, or more precisely, permissible pollution levels defined by applicable legislation.

V As part of the project, a large amount of both municipal type and building type waste is expected to be produced. Waste production in the categories of waste timber, construction steel and steel pipes, etc., is expected. Recyclable waste will be collected in suitable areas, where they will be picked up for recycling by an authorized company. Concrete materials will be used as filling material for concrete structures or as load bearing material for building / reconstructing roads or houses.

The remaining waste which cannot be recycled will be collected separately during the preparation work and during the subsequent operation and will be stored temporarily before being taken away for disposal. The location and properties of the temporary storage must be in compliance with the provisions of applicable regulations.

As regards possible pollution by acoustic influences or vibration, which can be expected especially during the preparation work and subsequent building work (use of explosives and heavy machinery), necessary measurements were done at the level of individual residential areas, where possible changes caused by project activities were modelled. It is necessary to emphasise that due to the fact that the noise level estimates are based on the worst scenario possible, which assumes that the set of machinery will work in the same place at the same time (which is, in fact, physically impossible), the real acoustic pollution level should be much lower.

The dam and hydroelectric power plant will not be a significant transverse barrier in terms of lengthwise migration of fish living in the river's tributaries. It is necessary to take into account their needs in terms of food, location and migration (migration for the purpose of reproduction). For this purpose it is expected that a fish pass will be built in order to enable lengthwise migration upstream.

In general, this project may be regarded as multipurpose because the reservoir and the hydroelectric power plant should provide the possibility of power generation, irrigation (68,060 ha) and, last but not least, flood control.

Picture 2 The river valley – building location

Reasons for the Project

The project is necessary for satisfying the increasing demand for electricity. Turkey has become one of the fastest growing electric power markets in the world. The Turkish power industry strategy supports the use of domestic sources in order to decrease dependence on imports. Another goal of the strategy is to increase the proportion of renewable energy sources, including increased use of hydroelectric power. The HEPP will have installed capacity of 280 MW and will generate approximately 880 GWh per year, which is approximately the equivalent of annual power consumption of 400,000 households.

Basic scope (structure) of the project

The project consists of the building of the dam, i.e. the construction of the dam body, and the adjacent directly flooded area (Alpaslan II Dam), hydroelectric power plant (HEPP), relocation of the current roads, building of new roads, building new power line and other, especially constructional, infrastructures necessary for the building process (such as quarries).

The dam and the hydroelectric power plant

The main part of the project is the dam (dam body building) and hydroelectric power plant (HEPP) on the Murat River. The dam body will be about 116 m high and about 800 m long. Another part of the structure will be a safety canal, approximately 1,700 m long, which will be constructed in such a way that it will provide a safe waterway in case of floods around the dam.

There will also be two diversion tunnels (875 m and 950 m in length) to divert the river so that the dam can be built in dry conditions. These tunnels will later be used as power tunnels in the operation of the hydroelectric power plant.

Water will flow from the reservoir into the tunnels and then directly into the dam body, or more precisely, to the turbines. The HEPP will have 4 Francis-Vertical Axis turbines, two of which will produce 110 MW and the remaining two will produce approximately 30 MW, which gives the total installed power of 280 MW. From the turbines the water will flow back into the Murat River.

Picture 3 Reconstruction of the dam body, energy tunnels and safety canal

Direct flooding area (reservoir)

The reservoir, which will basically become an artificial lake, will have a surface area of about 55 km^2 with an approximate volume of retained water of 2 billion m^3. In the deepest places, the water surface will reach the height of 68 m to 98 m.

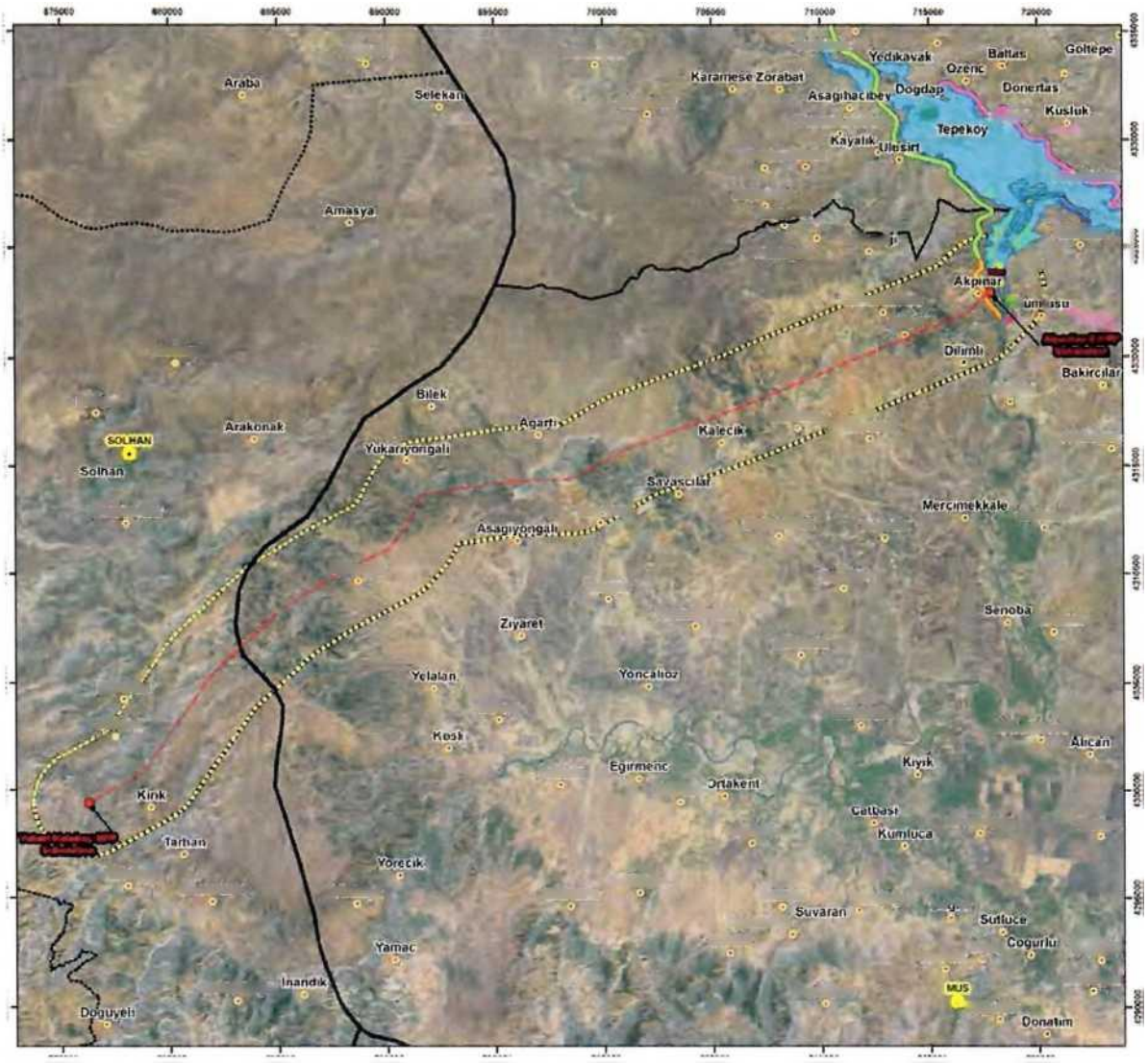
Picture 4 Dam and hydroelectric power plant design

Power line

The power generated by the (HEPP will be connected to the national power distribution systems by a power line of the voltage level of 380 kV. The power line will be approximately 50 km long – from Alpaslan II (or the HEPP) to the YEPARI Kalekoy substation. The exact route and design of the power line will be specified by the Turkish Electricity Transmission Corporation (TEIAS) during the local EIA process.

The power line will have about 85 steel pylons reaching the height of 30–50 metres. The hydroelectric power plant's background facilities will reach 202x132 metres in an undeveloped area on the right-hand edge of the planned dam body.

Picture 5 Power line (in red)



Relocation of roads

Due to the direct flooding, parts of the Mus-Varto (30 km) and Mus-Bulanik (24 km) roads will be flooded, so they will have to be relocated so that traffic connection and the functionality of the road infrastructure are ensured. The relocation of the roads will be done by Enerjisou and then handed over to the General Directorate of State Highways (KGM). KGM's standards (e.g. the width of the road, the surface, horizontal and vertical curves, etc.) will be part of the proposal of the new arrangement / solution of the relocated parts. At present, the roads have 2 lanes (one for each direction). The relocated roads will have four lanes (two for each direction). This increased capacity of the roads is based on the government's plan of modernizing the road

infrastructure.

Auxiliary infrastructure

The following auxiliary infrastructure will be necessary for the project:

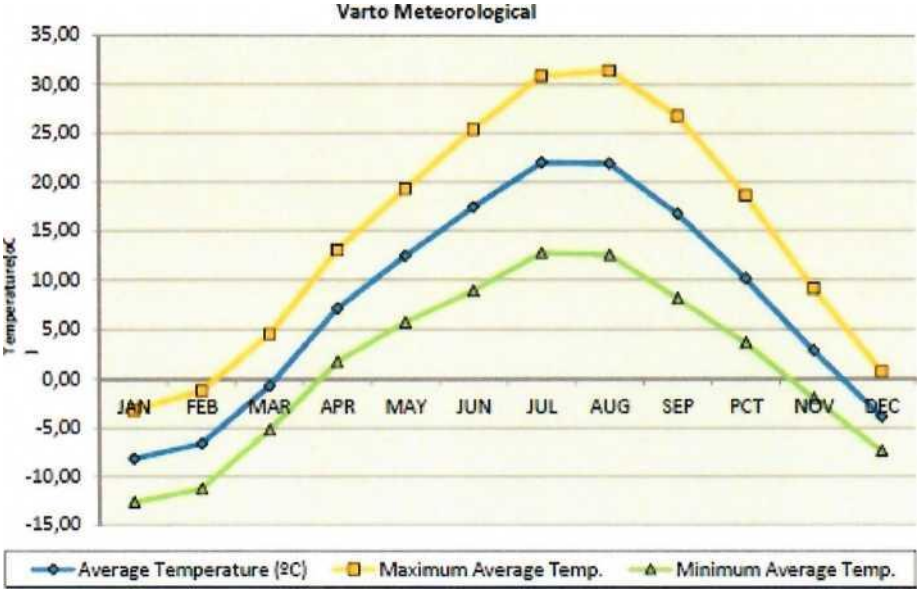
- five quarries for both impermeable (soil) and permeable (sand, gravel) materials to provide materials for the building; most of them will be situated within the area of the future water reservoir;
- five material storage places;
- one crushing facility;
- to building camps to accommodate workers.

3. Information about the state of the environment and about the socioeconomic aspects of the region

Climate

The polygon of the "Mus" area is situated in the East Anatolian region of Turkey. The province is influenced by continental climate. The winters are usually cold, with snow, while the summers are usually short and cold. As a result of fast transitions from winter to summer, the spring and the autumn last a relatively short time. The highest temperature was recorded in July 2000 (40.5 °C) and the lowest temperature in history (33.4 °C) was recorded in February 1985.

Picture 6 Average distribution of temperatures throughout the year



Precipitation

The average annual precipitation of 49.6 mm was recorded by Varto meteorological station. The average maximum precipitation amount is 87.3 mm in April and the minimum average precipitation amount is 7.7 mm in August.

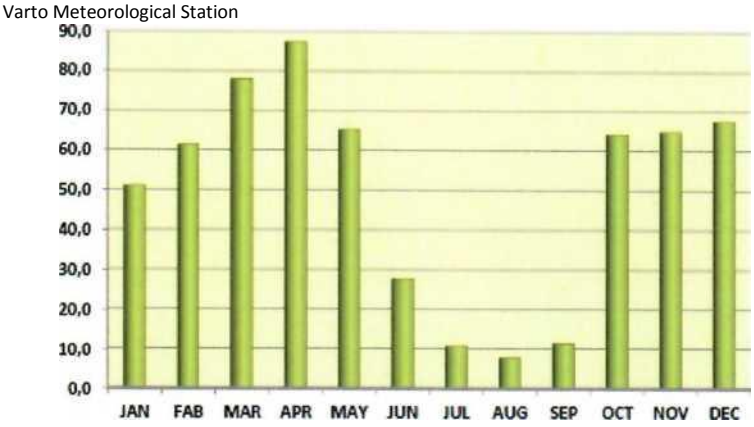
Air humidity

The average annual humidity of 63.1% was recorded by Varto meteorological station. The minimum monthly humidity was recorded in July (47.7%) and the maximum monthly humidity was recorded in December (75.8%).

Fog and snow cover days

According to the data measured by Varto meteorological station, the average number of days with snowfall is 39.4. The number of days with snow cover is 83 per year. The average snow cover height is 10.6 cm.

Picture 7 Average precipitation amounts



Wind characteristics

According to the data of Varto meteorological station, the average annual wind speed is 1.26 m/s. The average monthly wind speeds are in the following table. The highest recorded wind speed is 28.5 m/s, south east.

Table 2 Average monthly and annual wind speed

Months	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
January	2.0	2.1	1.7	1.8	1.9	1.6	1.4	1.4	0,9	1.0	0.9	0.9	1.0	1.4	1.5	1.7
February	2.1	2.0	1.6	1.7	1.9	1.7	1.4	1.4	1.1	1.1	0.9	1.0	1.1	1.4	1.7	2.2
March	2.2	2.2	1.9	1.9	2.1	1.8	1.6	1.8	1.5	1.3	1.1	1.3	1.2	1.6	1.7	2.0
April	2.2	1.9	1.9	1.8	1.9	2.0	2.0	2.1	2.3	1.8	1.8	1.7	1.6	2.0	1.9	2.0
May	2.1	2.0	1.9	1.7	2.0	1.8	1.9	2.2	2.3	1.8	1.7	1.6	1.5	1.9	1.9	2.1
June	1.9	2.3	1.9	1.8	1.9	1.8	1.8	2.0	2.0	1.6	1.4	1.4	1.3	1.5	1.5	1.9
July	2.0	2.6	2.0	1.9	1.8	1.7	1.6	1.8	1.7	1.5	1.2	1.3	1.1	1.3	1.3	1.6
August	1.6	2.2	1.8	1.6	1.6	1.6	1.6	1.8	1.9	1.5	1.4	1.3	1.1	1.2	1.2	1.4
September	1.7	1.5	1.4	1.4	1.4	1.5	1.4	1.7	1.9	1.5	1.4	1.5	1.3	1.2	1.2	1.2
October	1.7	1.6	1.3	1.4	1.6	1.4	1.4	1.5	1.7	1.2	1.2	1.1	1.0	1.2	1.3	1.3
November	1.7	1.8	1.3	1.4	1.6	1.4	1.2	1.4	1.1	1.1	1.1	1.2	1.1	1.3	1.5	1.4
December	1.6	1.8	1.4	1.4	1.5	1.4	1.3	1.4	1.1	1.0	0.8	0.9	1.0	1.3	1.4	1.4

The bedrock

Within the polygon of the area in question and its wider background there are mainly volcanic rocks of the period of tertiary volcanic rocks and volcanic sedimentary units.

During the geological surveys carried out as part of the project a total of 2,798 metres in 41 drill holes in the dam location or in its wider background area. Pressure tests, hydraulic pressure tests and standard penetration tests were done in the drill holes and laboratory analysis was done for some samples. In the axis of the dam body there are two basic types of rock formations, Adilcevaz and Zirnak. The dam body is situated on the Adilcevaz formation on the left and on the Zirnak formation on the right bank.

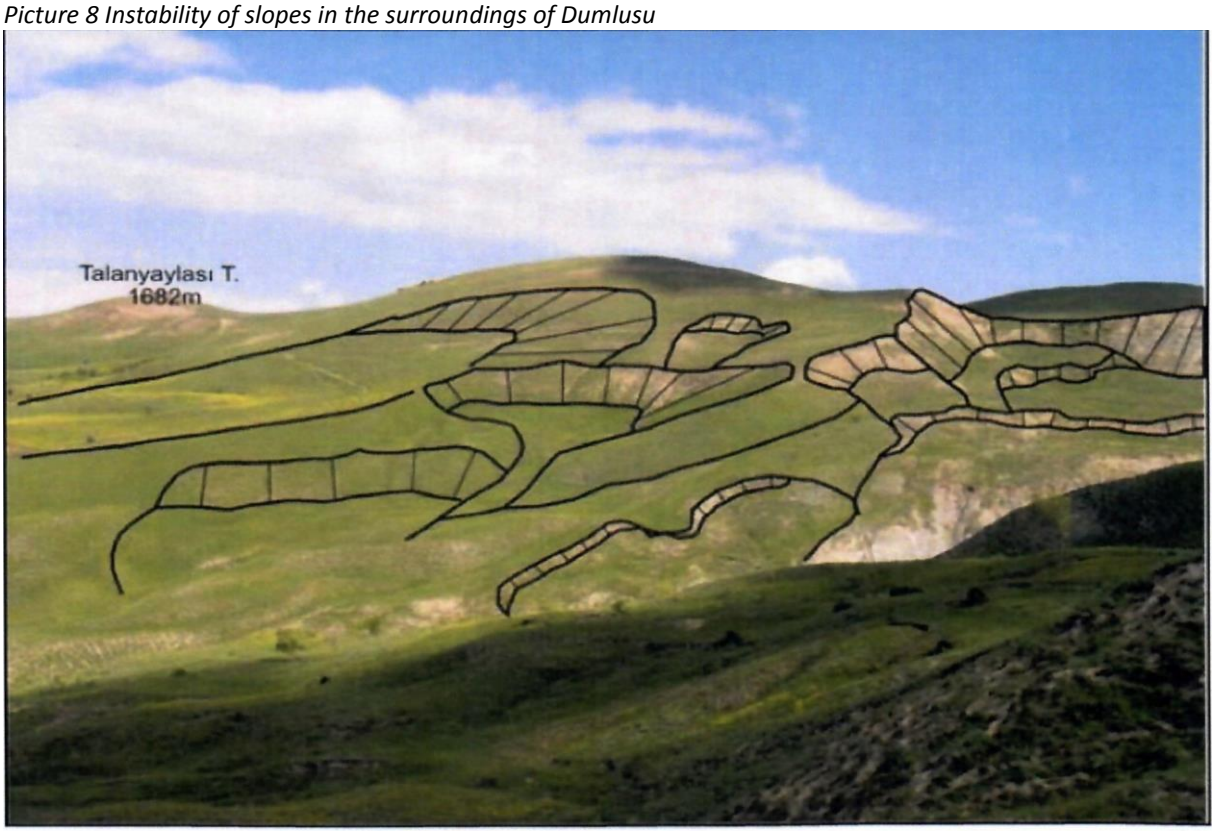
The geologic formations on the left bank can be defined as sandstone, conglomerate, limestone and claystone. The Adilcevaz formation under the dam body consists of green and yellow clay and sandstone. The Zirnak formation in the dam axis consists of different dimensions of basalt, limestone, sandstone and slate block.

Picture 7 Geomorphology of the river bed

Landslides and instability of slopes

There are areas with landslides and instability of slopes within the studied area. There are obvious landslides at Talanyaylasi Hill and Kas Hill, which are situated 1 km north east of the city of Dumlusu. The landslides in this place are caused by the slope gradient and by the bedrock (especially sandstone).

Picture 8 Instability of slopes in the surroundings of Dumlusu



The types of soil in the area in question are in the following table.

Table 3 Soil types overview and surface area / percentage

	Within the Boundaries of the Reservoir		Outside the Boundaries of the Reservoir	
Soil Groups	**Area (ha)**	**Percentage {%)**	**Area {ha)**	**Percentage (%}**
Alluvial Soil	605,73	13,89	-	-
Chestnut Soils	3848.54	76.38	255.15	76.07
River	135.84	2.71	-	-
Colluvial Soils	28 80	0.58	60.65	18.08
Basaltic Soils	260.69	5.20	19.16	5.85
Bear Rock	12.30	0.25	-	-
Settlement	27.42	0.55	-	-
Total	**5,009.32**	**100.0**	**335.40**	**100.0**

Land Use

Mus is situated at a high altitude (1,250 above sea level), which basically forms the composition of the individual land use or land cover categories. The vegetation of the Mus region typically consists of steppe vegetation, pastures and oak forests. Mountain meadow vegetation prevails at the high altitudes of Mus Province.

Table 4 Land Use overview and surface area / percentage

Usage	**Area | Hectares**	**Percentage %**
Cultivated Area	335,049	40,9
Pasture	278,673	34,0
Meadow	97,333	11,9
Forest	57,147	6,9
Vineyards and orchards	7,149	0,9
Non-agricultural Land	44,249	5,4
TOTAL	**819,600**	**100,0**

Floods

Higher risk of floods has been identified for the following municipalities: Merkez Dere, Murat Pasa, Kale Quarters, Sungu, Kirkoy, Karaagacli, obvod ve městě Kiyik, Ucdere, Suboyu, Yazla, Kumluca, vesnice Egirmenci, okres Bulanik, Yazbasi, Sultanli, Dokuzpinar.

4. Comprehensive characteristics and assessment of the export project's impact on the population and environment

Due to the location of the project and its distance from the nearest municipalities, no significant impact on the population can be expected. From the point of view of the social and economic impact of the export project, the project will contribute to the development of the region and to an increase in employment.

Background concentrations of pollutants in the air are within the limits of applicable health safety standards. No binding health safety limits of pollutant concentration in the air will be exceeded during the building and operation of the dam. An exception is the emissions of dust particles during the building process, which can be minimised by operational measures in earth moving work, transport of materials and disposal.

Due to the activity type, noise pollution caused to the population can be excluded. For the building stage, a noise pollution study was done, which did not prove any exceeding of noise limits for exposed subjects of health safety protection. The exposure of employees (10 persons) in the working area, with regard to the technology used, should not cause any increased health risk. Based on the declared data it can be assumed that limit levels in the individual workplace types will be observed.

From the point of view of water management and paedology, the project could cause risks during the building stage and in case of an accident. For the building stage, measures have been determined, such as mobile sewage treatment plants, and temporary sedimentation tanks for the case of mechanical pollution. The treated and purified water will be discharged into the Murat River while the legal limits will be observed. Depending on its character, the sludge will be taken away for further use (applied to farm land) or disposed of at waste dumps. In the operation stage, the polluted water will be treated by the Mus water treatment plant. If all technologies and the operational and handling rules for water management are adhered to, the building will not have any significant impact on water quality and water regime.

From the point of view of establishing the building, with regard to its extent and the level of building technology and operation, the impact on soil, bedrock environment and natural resources, the proposed prevention procedures and minimization of negative influences were assessed sufficiently, and most activities are located in the areas which will be flooded in the future. During the building activities, before the excavation work is begun, the top layer of the soil must be cleared away so that it is not polluted and deteriorated and this layer must be stored so that it does not lose productivity. This soil will be used for landscape renovation, vegetation modification of the adjacent area and forestation work. The original composition of the local forests will be kept the same during the forestation work.

Waste production is significant especially in the building stage. Any waste that might present a risk for water quality, will be transported to waste dumps outside the area in question. Inert materials will be used during the earth moving work as necessary.

There are no forest stands in the building location. Permanent grass stands used as pastures prevail in the flood area. Marginal forest areas directly follow the forest stands of the same characteristics outside the flood area, so the qualitative point of view of the impact of the appropriation of forest ecosystems is compensated. It is also expected that during the building period most land fauna will leave the area around the building site and migrate into similar adjacent areas for a definite period of time, depending

on the intensity of the building activities.

With regard to the fact that the aforementioned sites start near the building site and the region has a homogeneous ecosystems structure, the migration routes will not be long.

When the reservoir lake is established, part of the original terrestrial ecosystems and the biota connected with them should be replaced with water ecosystems. A higher degree of development of recreational activities is expected in the vicinity of the dam, which means another change in land use and a higher proportion of synanthropic ecosystems. There will be more development potential in the area of water flora and fauna. From the point of view of securing fish migration in the Murat, the project includes the building of fish passes. In the period of bird migration, suitable bodies of water, which will be created as a result of the dam, the ornithological and ecological importance of the region could increase.

There are no cultural sites, historical sights or archaeological sites in or near the location.

Generally, it can be said that the impact of the export project on the landscape as a whole, on material property and cultural sites does not reach any limit values preventing it from being implemented and operated, with regard to its location and to the character of the area in question.

From the point of view of the proposed technology and character of the environment in the area in question, the overall impact – with regard to its importance – of the project on the environment can be considered to be admissible in the given context.

Standard methods of environmental impact assessment for the selected parts of the environment were used. The information value of the results depends on the scope of data available.

Cross-border impact is not expected.

All technologies are secured, through emergency plans, against direct and immediate leakage of hazardous substances into the adjacent parts of the environment.

5. General assessment of the compliance of the assessed export with environmental protection rules

The available project documentation and the assessment of the building's impact on the environment "Alpaslan II Dam and 280MW Hydroelectric Power Plant Building" in Mus Province, Turkey, are elaborated very reliably at this stage. The negative influences do not exceed the level determined by the law and by other regulations.

Based on available data, the export project complies with all the applicable Turkish limits and in its key parameters it is compatible with the EBRD (European Bank for Reconstruction and Development) standards.

With regard to localization, the applied technologies and with the observance of the monitoring plan for the building and operation stages – see table Vlll.1. Monitoring plan, pp. 258–261 Final EIA report (vol.-l) Alpaslan II Dam, Material Borrow Areas and HEPP Project (2012), no above-standard environmental monitoring is required except for supplementing the monitoring with annual reports on the manner of using the top layer of the soil in the reclamation of the adjacent areas, which must be completed within five years after the dam operation is begun.

6. Definite final assessment of the admissibility of the project's impact on the environment

Part of the environment	**Satisfactory**	**Unsatisfactory**	**Notes**
Impact on population, including socioeconomic factors	yes		
Impact on air and climate	yes		
Impact on noise levels	yes		
Impact on surface and underground water	yes		
Impact on soil	yes, with a condition		Annual reports on the manner of using the top layer of the soil in the reclamation of the adjacent areas, which must be completed within five years after the dam operation is begun
Impact on bedrock environment and natural resources	yes		
Impact on fauna, flora and ecosystems	yes		
Impact on landscape	yes		
Impact on material property and cultural sites	yes		
Overall assessment	yes, with the aforementioned conditions regarding individual parts.		See the aforementioned conditions and the observance of the monitoring plan set out in the Final EIA report (vol.-I) Alpaslan II.

If the aforementioned conditions and parameters of the building are met, the implementation of the export project of "Alpaslan II am and 280MW Hydroelectric Power Plant Building" in Mus Province, Turkey, is admissible from the point of view of environmental impact.

7. List of materials referred to in the assessment:

ENCON ENVIRONMENTAL CONSULTANCY CO., 2012: Final EIA report (vol.-l) Alpaslan II Dam, Material Borrow Areas and HEPP Project (dam, hepp, material borrow areas, crushing-screening- washing facility, concrete plant, relocation road).

ENCON ENVIRONMENTAL CONSULTANCY CO., 2012: Final EIA report (vol.-2 Appendices) Alpaslan II Dam, Material Borrow Areas and HEPP Project (dam, hepp, material borrow areas, crushing-screening-washing facility, concrete plant, relocation road).

8. Authors of the assessment authorization

Ing. Vladimír Zdražil Department of applied ecology of the Faculty of Environmental Sciences, Czech University of Life Sciences, Prague

Ing. Zdeněk Keken Department of applied ecology of the Faculty of Environmental Sciences, Czech University of Life Sciences, Prague

Date of assessment authorization:

May 2019

Author's signature: