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## NON-TECHNICAL SUMMARY

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**ESIA incl. ESMP, SEP, LRP, LAP incl. SIBS & CRA for Solar District Heating Prishtina (Solar 4 Kosovo II)**  
**KfW Order Number: 105663**

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Client:

**TERMOKOS Sh.A.**

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## Abbreviations

CES	Clean energy solutions GesmbH (Austrian Consultant Company)
CHP	Combined Heat and Power (= Cogeneration) power plant
CRA	Climate Risk Assessment
DH	District Heating
EBRD	European Bank for Reconstruction and Development
EHS	Environmental Health & Safety
ESHS	Environmental and Social and Health & Safety
ESIA	Environmental and Social impact assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standards (of the World Bank)
EU	European Union
FS	Feasibility Study of Solar4Kosovo project (July 2022, by CES)
GRK	Government of the Republic of Kosovo
GIIP	Good international industry practice
H&S	Health & Safety
HX	Heat Exchanger
IFC	International Finance Corporation (part of The World Bank)
IFI	International Financing Institutions
IHMK	Kosovo Hydrometeorological Institute
ILC	Ibër-Lepenc Canal (public infrastructure)
ILO	International Labour Organization
KEPA	Kosovo Environmental Protection Agency
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)
KS	Kosovo
LRP	Livelihood restoration plan
MESPI	Ministry for Environment, Spatial Planning and Infrastructure of the Republic of Kosovo
OECD	Organization of Economic Cooperation and Development
OHS	Occupational Health & Safety
O&M	Operation and Maintenance
PAP	Project affected persons
PEA	Project executing agency (=TERMOKOS)
PFS	Pre-Feasibility Study Solar Thermal Project for TERMOKOS DH network (Jan 2020, CES)
RAP	Resettlement Assistance Plan
RKS	Republic of Kosovo
RWCP	Regional Water Company of Prishtina
SEF	Stakeholder Engagement Framework
SEP	Stakeholder Engagement Plan
SIA	Social Impact Assessment
SIBS	Social Impact Baseline Study
TMP	Traffic Management Plan
UN	The United Nations
URP	Urban Regulation Plan
VEC	Valued Environmental and Social Component
VGGT	Voluntary Guidelines of the Responsible Governance of Tenure of land, fisheries and forest
WB	The World Bank
WHO	World Health Organization
WMP	Waste Management Plan

## **1. THIS REPORT**

This subject document is a non-technical summary of the Draft Report on the Environmental and Social Impact Assessment (ESIA) on the planned project "SOLAR4KOSOVO II / SOLAR DISTRICT HEATING PRISHTINA". Being a non-technical document, it aims to inform the wider public on the project. It is made available in the three official languages of the Republic of Kosovo, in Albanian, English and Serbian language.

The draft report has approximately 300 pages and 13 annexed documents and was elaborated by CES clean energy solutions ([www.ic-ces.at](http://www.ic-ces.at)), an Austria-based environmental consulting company jointly with local environmental and socio-economic experts from Kosovo and Albania throughout the period March to October 2022.

### **1.1. ESIA OBJECTIVE**

The conduct of the ESIA assessment, its documentation as a comprehensive report and the publication is strictly required by the co-funding banks and donors and may therefore exceed the obligations of national legislation of the Republic of Kosovo.

There are three steps during the ESIA conducted:

- (1) Describe the existing status of environment and society in the project area and its surroundings ("baseline situation of environmental and social indicators").
- (2) Based on the project description, which is laid down in another Technical Feasibility Study (TERMOKOS 2022), the experts of the ESIA team have tried to forecast all risks but also benefits, which may arise from the planned project in the project site, in the surrounding area and in wider distance. Therefore, the ESIA contains a list of possible negative and positive conditions ("risks and impacts") for the 3 phases of the proposed project, the construction phase, the operation phase and a potential phase of deconstruction ("decommissioning phase"). These conditions are moreover assessed in its magnitude by the help of a specialist evaluation method.
- (3) Finally, a number of measures have been listed or required in the Environmental and Social Management Plan („ESMP“), which shall be implemented by the project proponent during the phases in order to avoid or reduce all possible negative conditions, while striving to enhance the benefits to local communities and the environment.

## **2. DESCRIPTION OF THE PROPOSED PROJECT**

### **2.1. INVOLVED INSTITUTIONS**

The owner of this report is the project proponent, the Municipal District Heating Company of Prishtina, Ngrohtorja e Qytetit TERMOKOS SH.A., abbreviated "TERMOKOS", represented by its CEO, Mr Fisnik Osmani and the Head of the project implementation unit, Mr Naim Bytyci. TERMOKOS is being supported by the Municipality of Prishtina in administrative and political matters. The Municipality is represented by the Mayor of Prishtina, Mr Përparim Rama, and Vice-Mayor Mr Alban Zogaj.

The intended project "SOLAR4KOSOVO II / SOLAR DISTRICT HEATING PRISHTINA", also known as "Big Solar Kosovo", is co-financed through Financial Cooperation (grants) by German Development), represented by the Ambassador of the Federal Republic of Germany to Kosovo, Mr Jörn Rohde.

A related loan is given by the German KfW Development and for a minor share by the European Bank of Recovery and Development (EBRD). An own financial contribution will be made from the TERMOKOS.

### **2.2. KEY PROJECT OBJECTIVES**

The intended project aims at enabling TERMOKOS with the provision of additional heat energy capacity to the existing district heating network of Prishtina on a solar thermal basis.

The overall investment will enable TERMOKOS to supply at least an additional 65 GWh/a of heat energy to the DH network of the city of Prishtina.

In Prishtina itself the existing district heating network will be expanded.

Additionally, new customers will be connected to the network and profit from a more economic and reliable heat supply.

The additional heat energy capacity is allowing for:

- Higher reliability of the district heating system through additional heat source
- Higher efficiency of DH system through reduction of peak loads and consequently allowance for a higher level of DH throughput with existing infrastructure.
- Heat energy supply of additional facilities or areas in Prishtina through extension of the DH network to adjacent urban districts

These new heat capacities are being part of the National Development Strategy 2016-2021 and in the Energy Strategy of the Republic of Kosovo 2017-2026.

### **2.3. IMPLEMENTATION TIMING**

As per the S4K SDH Feasibility study (Annex Sol4Kos implementation plan) The pre-construction phase (PIU support, expropriation, procurement, design) is envisaged to start in 2023 and to last 27 months. The construction phase would start in spring 2025 and is expected to last 25 months. Operation phase could start with commissioning in summer 2027, whereas performance and optimization are to undergo during the following heating period.

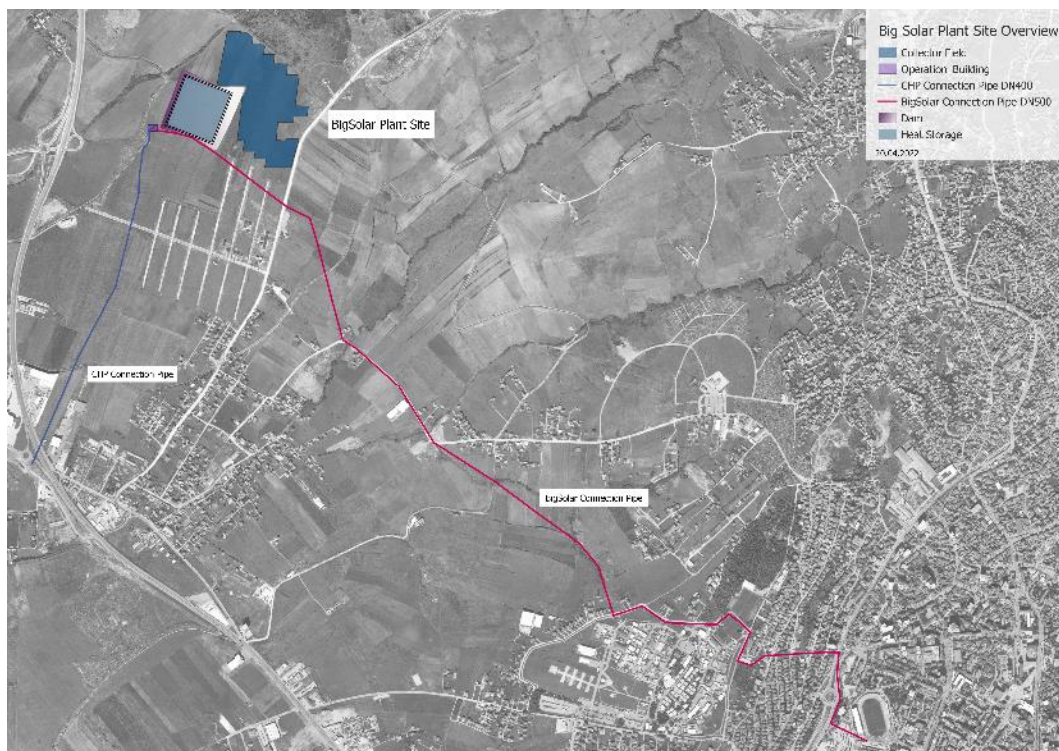
Decommissioning (de-construction and dismantling) is expected at the earliest date after 30 years of operation.

## 2.4. THE PROJECT LOCATION

### 2.4.1. Project footprint

The solar plant and the seasonal pit storage are envisaged to be built on an undeveloped plot in the northeast of the territories of the Municipality of Obiliq. This area is further named as project site. The intended project site is envisaged to be an agricultural plot in the northeast of the territories of the Municipality of Obiliq. The project site it is confined by the Ibër-Lepenc irrigation canal and the non-perennial Gazimestan creek in the west, the Gazimestan Protected area with the Gazimestan monument and the Bajraktar’s Tomb in the north, the Batalioni Atlantiku Road (i.e. the Municipal border between Prishtina and Obiliq) in the east and the Hade-e-Re residential area in the south. The Southern border is additionally characterized by several High voltage lines (10 kV) from Obiliq Thermal Power plant to Prishtina, owned by KOSTT, that border the project site from the Hade-e-Re new residential site, coming from the southwest and veering here to the east/southeast. The Expressway M2 (Kastrioti Road) is passing by some 250 meters west of the site’s border with the Ibër-Lepenc canal, whereas the motorway exits with connecting road to M7 is located here and connected with a local road to Hade-e-Re central road (Iliria street).

The area belongs to the lowland-hilly area of Kosovo and is located at approx. 600 m a.s.l., it is flat but slightly tilted towards southwest. The site slopes downwards from northeast to southwest direction, with height differences of 15 m to 35 m. In the west of the plot, there is a natural valley with the episodic creek, which is another 10 m deeper.



**Figure 2.1: Location of Project site and proposed alignment pipelines**

The plot where the solar plant is to be constructed is primarily used for agricultural purposes (wheat). A few years ago, a gravelled dirt road leading through the fields was built that leads to a small burial site with about 6 Muslim-type graves (since 2018).

Currently, the intended project site area is an ordinary manmade agro-ecosystem landscape with few remaining elements of natural fragments, e.g. small areas of shrubby vegetation and some also small parts of ruderal vegetation near the settlements. Near the intended project site are human settlements and other agricultural lands, combined with a local natural creek and the Ibër-Lepenc irrigation channel.

The Natural Reserve area of Gazimestan, borders directly north the intended project site. Originally dedicated to save the *Paeonia decora*, a species of flowering plant in the peony family *Paeoniaceae*, the area has lost its character of a natural reserve or intact biogeotope and today hardly any peony is visible.

Outside the project area, in the southern part, the site will be tangent to the planned Prishtina ring road, nowadays visualized by the High-Voltage power lines.

**2.4.2. Pipelines from/to the project site**

Further components of the project are two pipeline alignments, the Pipelines A and B. The alignments of both pipelines are only provisionally defined in the Feasibility Study and its exact alignment will be defined during the design phase.

It is foreseen that each pipeline will comprise of two DN500 steel pipes with insulation, to be positioned approx. 1.5 m below surface, whereas the trench may have a bottom width of 3.15 metres.

The same alignment for Pipeline B will also include a DN32 freshwater line for permanent re-filling of the pit storage.

**Table 2.1 Overview of intended project land use and sizes**

Item	Approx. Sizes
Land Plot (Project area)	25 hectares
Solar thermal collector's footprint	13 hectares
Covered Pit Storage	6 hectares (V=400.000 m <sup>3</sup> )
Operation Building (Absorption heat pump) footprint	400 m <sup>2</sup>
Pipeline B: CHP connector line from DH transmission line to AHP	1.48 km
Pipeline A: DH Feeder line from AHP to City of Prishtina	4.6 km



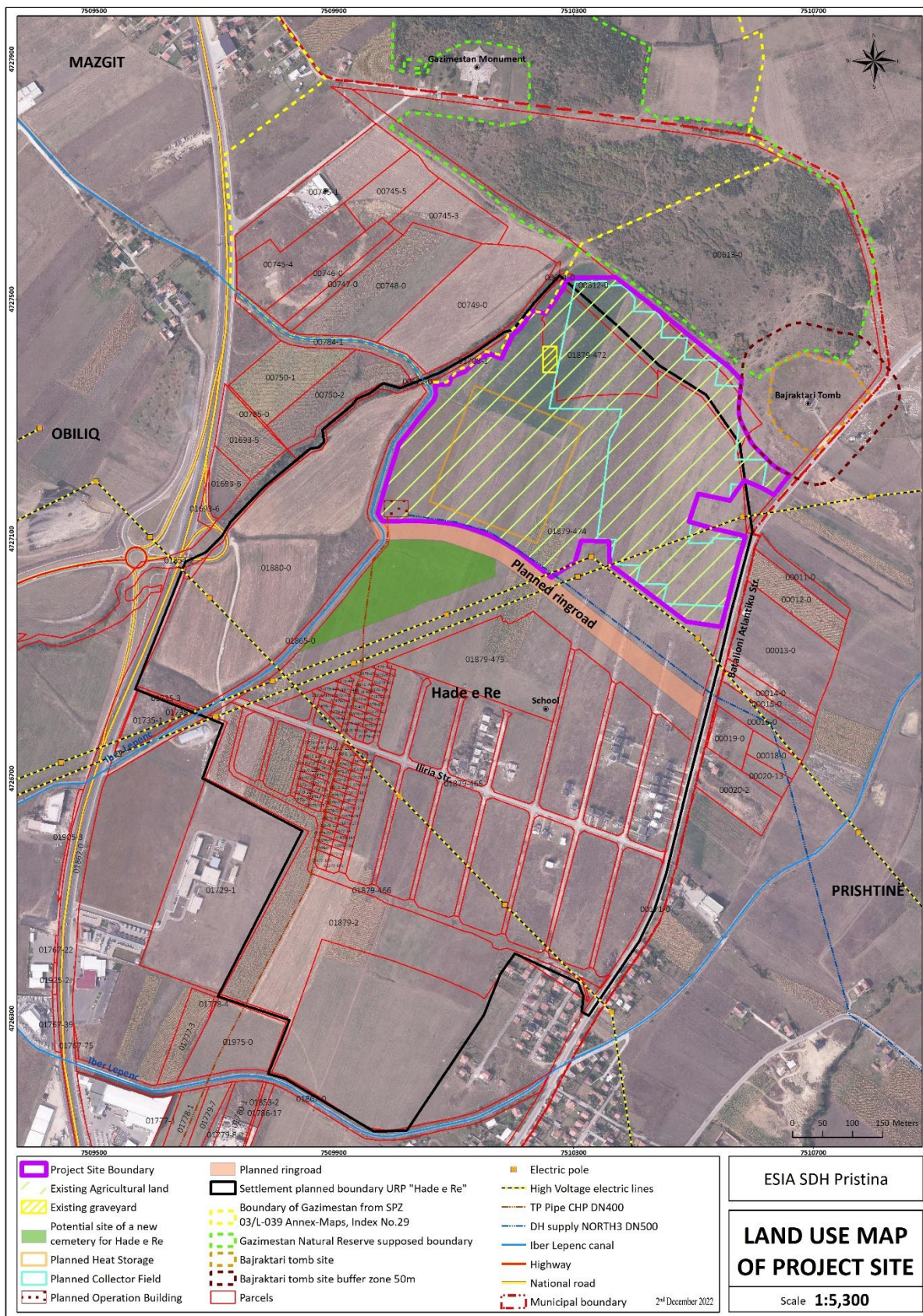


Figure 2.2 Land-use map of project site

### 2.4.3. Land ownership

The project site is located on parcels partly owned by the Government of the Republic of Kosovo and partly by the Municipality of Obiliq, being a zone of specific purpose.<sup>1</sup>

**Table 2.2 List of parcels for the Solar4Kosovo project site**

Cadastral Parcel no.	Culture	Size [m <sup>2</sup> ]	Part of URP <sup>2</sup>	Original Owner	New Owner	Entitlement	Legal Basis
1879-474	Construction Land / Parcel	289.551	A2	n.d.	GRK	Termokos	Doc A2 <sup>3</sup> , Doc B <sup>4</sup>
1879-472		21.644	A2 <sup>5</sup>				
612-1	Agricultural Land / Pasture, class 3	41.702	Out-side	Mun. of Obiliq	GRK	RKS, Termokos	Doc A1, Doc A2
612-2		1.494					

In return, the ownership of Cadastral parcel no. 1880-0 (culture 'Construction Land / Parcel' in size of 98.578 m<sup>2</sup>, will be transferred from the Republic of Kosovo to the Municipality of Obiliq based on Decision No. 27/68 of 23<sup>rd</sup> March 2022 of the Government of the Republic of Kosovo.

Its implementation is legally binding to the respective municipalities and national institutions and is conducted according to the respective administrative framework of parcel registration.

## 2.5. ASSOCIATED FACILITIES

Associated Facilities of the Project defined as per World Bank's ESS 1 as facilities or activities

- that are not funded as part of the project (and not of the project's scope);
- and (a) are directly and significantly related to the project;
- and (b) carried out, or planned to be carried out, contemporaneously with the project;
- and (c) necessary for the project to be viable and would not have been constructed, expanded or conducted if the project did not exist.

Scrutinizing the functional elements of the existing Prishtina district heating system, the locally existing structures at the project site and the overall setting of the Solar 4 Kosovo project, the associated facilities of the project are the future DH network facilities in any Prishtina District, yet to be defined.

<sup>1</sup> Letter of MESPI Minister Aliu to German Ambassador and KfW Bank, October 2021, see Annex 14.1

<sup>2</sup> URP: Urban Regulatory Plan for Location of Hade-e-Re

<sup>3</sup> Doc A1: Governmental Decision No. 27/68; Doc A2: Gov. Decision No. 28/68 (23.03.2022), both published under <https://kryeministri.rks-gov.net/wp-content/uploads/2022/05/Vendimet-e-mbledhjes-se-68-te-te-Qeverise.pdf>.

<sup>4</sup> Doc B: Commitment Agreement between Obiliq and MESPI, Protocol No. 1555/22 (23.03.2022)

<sup>5</sup> In URP foreseen as „Graveyard“

The project will not require an additional access road, as the project site directly borders to the public road “Batalioni Atlantiku” and the Pipeline corridors can be accessed from neighbouring roads as well.

## 2.6. PROJECT DESIGN

### 2.6.1. Solar Collectors

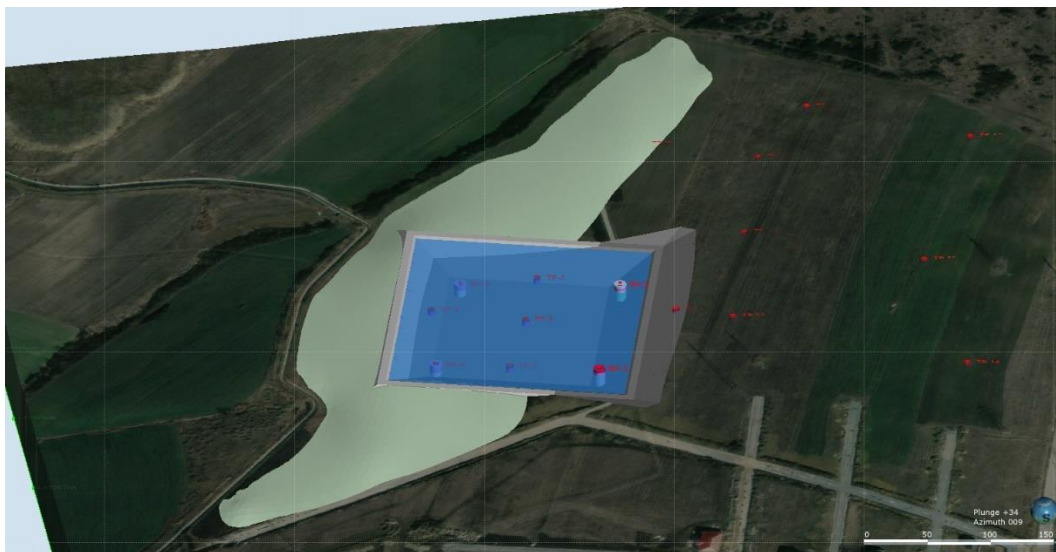
The central element is the construction of solar thermal collectors with an approximate collector surface of 69,000 m<sup>2</sup>. Solar thermal collectors are connected by water pipes with the operation building. Solar thermal collectors are consisting of solid material, such as wood, aluminium, glass, metal, rockwool. They do not contain hazardous material, such as polysilicon.



**Figure 2.3 Visualization of Solar Collectors location (Source: Feasibility Study 2022)**

### 2.6.2. Seasonal pit storage

The structure of a seasonal pit storage consists of an excavation covered with a protective foil, a so-called water-tight liner. The storage is water-filled and covered by a floating insulated cover lid of 100 cm thickness. The pit would be shaped as a truncated pyramid placed upside down in the ground. Excavated soil shall be partly used as embankments around the upper part of the storage. Inside the pit storage, a water temperature is maintained between 35 °C at bottom layer; and up to 95°C on top layer.



**Figure 2.4: Non-final 3D visualization of pit storage in the project site topography (Source: FS team)**

A small operation building will house the absorption heat pump (AHP) and a heat exchanger (HX). The pipeline B provides the AHP with driving heat from the Combined Heat and Power plant at Kosovo B. The AHP increases the low heat energy level of stored water storage to a higher energy level and allows to provide the required temperatures for the district heating (DH) network of Prishtina through the pipeline A.

### **2.6.3. Pipelines**

The connector pipelines A+B needs to be laid in a trench of significant depth (approx. 2.4 meters) and bottom width of 2-3 metres. Pipes may be protected from corrosion, especially when crossing Shkabaj creeks, or from underground position change through specific measures or auxiliary construction (liquid coatings based on polyurethane or epoxy resins) as well as weighting through concrete riders.

As the district heating grid is closed for six months in summer, the solar thermal collector field only feeds into the storage during these six months. The stored heat (hot water) is then fed directly into the network in autumn, as long as the temperature is not lower than the target temperature in the district heating network.

The pit storage is discharged via the absorption heat pump if the storage temperature falls below the network flow temperature. The storage is discharged as quickly as possible in autumn to reduce heat losses. The heat pump operates continuously for the remaining 4-5 months.

## **2.7. GEOLOGY, SOIL AND GROUNDWATER**

Based on the site investigation data, the local geological situation is characterised by quaternary and neogene deposits as well as fluvial terraces. Due to rock weathering the area has a quite immense thickness of soil layers, up to 20 meters. The risk of geomorphological mass movement (denudation), such as landslides, is deemed however low to medium, given the local prevalent soil type of clay.

During the geotechnical site investigation, boreholes were drilled to 15m depth, whereas no rock has been discovered, indicating a high depth of the local soil layers. The soil layer

was characterized as silty clay with less sand content, which needs to be mixed with sand in order to be stabilized, e.g. for the construction of the slopes of pit storage.

The studied area is considered to have a certain seismic activity. According to the seismic classification of Kosovo, the potential maximal seismic acceleration and intensity is 9 degrees on MSK-64 scale with a repeating period of 475 years, whereas the particular area of investigation has a maximum horizontal acceleration of 0.12g.

The hydrogeology of the investigated location belongs to the Neogene Aquifers which are characterised with medium to low permeability ( $10^{-5}$  to  $10^{-9}$ m/s).

Hydrogeological studies performed in the Region of Prishtina show that the ground water level varies during different seasons. During the time of the fieldwork (November 2021), no ground water was encountered in boreholes of 15 m depth or trial pits of 5 meters depth.

At the project site the uppermost groundwater aquifer is feeding the wells of adjacent Gazimestan creek, which since the time of the fieldwork (until October 2022) has not borne any water, except at very few days of snow-melting in February 2022.

A shallow groundwater level could therefore by theory only be expected in the direct vicinity of the Gazimestan creek, whereas further uphill (towards Bajraktars tomb) the relative distance to ground water level inside the 20m thick soil layer increases with particular height above sea level.

The existence and utilization of local wells in Shkabaj cannot be fully ruled out, but is deemed of insignificant number and importance, due to the deep ground water level.

The following overview provides the major issues for the attribute Geology, Soil and Groundwater for the construction and decommissioning phases.

## **2.8. WATER AND WASTEWATER MANAGEMENT**

### **Surface Waters**

The surface waterbodies in the project site and area of interest directly touched by the project are:

- Northern and southern Shkabaj creeks in the valley of Shkabaj (running from NE to SW), tributary to Sitnice R. (crossed by Pipeline A)
- Gazimestan creek from NE to SW, tributary to Sitnice (project site boundary)
- Ibër-Lepenc irrigation canal (water flow from NW Kosovo towards Prishtina) (crossed by both Pipelines).

### **Local water supply and wastewater discharge**

All residential areas, affected by the project, i.e. Prishtina and Obiliq settlements of Arberia, Shkabaj and Hade-e-Re are connected to the Freshwater network of the Regional Water Company of Prishtina. The number and location of households, which are additionally relying on private groundwater wells is not known. The Regional Water Company of Prishtina has its purification facility within 1 km distance of the project site.

As regards the above-mentioned streams of Prishtina's Shkabaj valley east of the project site, it was visible at site visits that those are abused as wastewater sewage and recently not being a waterbody of high ecological quality. A sewage system is not yet in place in Shkabaj, thus commercial and household effluents are discharged into these water courses. Sampling was not performed in these waterbodies, as not deemed a key sensitive receptor.

Based on the taken samples from surface water and its sediment, it can be noted that:

- the contents of Arsenic, Lead, Copper are in the category A - level unpolluted,
- the amount of Zinc is between categories A and B - level implies a geogenic pollution present and further investigation would be required.

### **Wastewaters**

A Lack of wastewater treatment, old technology and equipment, pollution from industry and mining, large quantities of mining waste and metallurgy of the past continue to be a constant source of water pollution. The Northern and southern Shkabaj creeks are used as wastewater sewage for households and businesses inside the watershed.

## **2.9. AIR QUALITY**

The Kosovo Institute of Hydrometeorology (IHMK) is monitoring the air quality by a dedicated network of 12 monitoring stations, among them in Obiliq (3 stations), Prishtina (2 stations), measuring gaseous air pollutants (NO<sub>2</sub>, SO<sub>2</sub>, CO and O<sub>3</sub>) as well as fine dust particles (PM<sub>10</sub>, PM<sub>2.5</sub>). For the area of Obiliq, a specific law (No. 05/L-044) exists on monitoring of the known air pollution.

Although at the project site no own sources exist, that significantly pollute the ambient air, the main air pollution has its origin at power plants Kosovo A and Kosovo B located 5 km southwest from the project site. There, burning of locally mined lignite coal and the absence of effective filtering of exhaust air results in an enormous number of particles suspended in the atmosphere and impacts local air quality.

Additionally, to the monitoring data for fine dust by IHMK, during the ESIA study period dust deposition was monitored on three points at the project site in the period of March – June 2022 by use of the Bergerhoff Method (VDI 4320). During this period, the individual 30-day concentration levels of total dust have found to be below the limits, which might be explainable through the weather conditions in springtime.

## **2.10. NOISE AND VIBRATION**

The ESIA has conducted own noise level measurements at the project site in February 2022 in order to assess the recent noise situation. A storage building (ORACA) near Gazimestan suffers due to its direct vicinity to Motorway M2 the highest noise (day 65.6

dBa, night 57.3 dBA). The noise situation at the other two sampling points, Hade-e-Re Public School and Bajraktar's tomb is of lower intensity (day: 58.8 resp. 59.1 dBA; night 53.8 resp. 54.0 dBA).

The latter both are therefore compliant with the Kosovo Administrative Instruction No. 08/2009 on allowed values of noise emissions from pollution sources, that defines the acoustic limit values in villages or mixed areas with 64 dBA at daytime and 54 dBA at night-time. The limit values have been exceeded at the sampling point "Gazimestan/ORACA", as not considered as an industrial zone.

However, these noise level results at the measuring points serve as comparative evidence to analyse future acoustic situation during the construction phase.

### **2.11. SOLID WASTE AND HAZARDOUS MATERIAL MANAGEMENT**

The waste management system in Kosovo is underfinanced. Only few landfills request gate fees, which only cover the basic cost of managing the landfill, without making provisions for any aftercare. For waste collection, no 'pay as you throw' system is in place; households pay a fixed monthly fee for the waste collection and disposal service. There are also fees for waste collection services for businesses and institutions. These revenues usually cover only the collection service, while the remaining disposal costs have to be obtained from other funding sources. Municipalities and licensed companies are responsible for organising municipal waste collection. In urban areas, the waste is collected through common collection points, while in rural areas the collection is done door to door. According to the new integrated waste management strategy, Extended Producer Responsibility (EPR) mechanisms are to be applied to four product categories/waste streams by 2023, namely packaging, WEEE, batteries and end-of-life vehicles. There are no waste incineration plants in Kosovo.

Currently, almost all Municipal solid waste collected in Kosovo is landfilled, either at one of the growing numbers of illegal dumpsites (about 10 %) or at officially designated non-sanitary sites (50 %). The rest goes to one of the seven sanitary landfills.

Inside and nearby the project site, various informal dumpsites for excavated soil or solid construction waste of various size and type can be found in the vicinity of the project site. While next to the Hade-e-Re school and sports ground, a quite spacious plot of land has been dumped with excavated earth without grading, also inside the area of the Gazimestan Specific Protection Zone a number of smaller construction waste dumps can be identified even from aerial pictures. Around the Bajraktar's Tomb such wild dumps deemed to have existed but were partially removed with the renovation activities of this site.

Out of the 424,653 m<sup>3</sup> excavation masses required for the pit-storage approx. 2/3 of soil will be transported to a landfill, while the residual masses will be used locally for landscaping. The landfill for discharge of the excavated soil will be determined in consultation with Prishtina municipality, expected is the Mirash landfill.

### **2.12. STORMWATER MANAGEMENT AND EROSION CONTROL**

During the ESIA study period, several fieldworks and studies were performed (on soil, biodiversity, surface water and sediments). A climate risk assessment has assessed the historical and recent climatic parameters including monthly precipitation. The frequency and intensity of historical stormwater events in the Obiliq and Prishtina could not be

statistically studied due to lack of such information. According to predictions related to climate change, the probability of heavy storm events in entire Europe may increase with the overall increase of temperature and atmospheric water content.

While Gazimestan creek is a waterbody with episodic flow regime, other waterbodies in Shkabaj area, in future being crossed by future pipeline, are far from natural character as being abused for the discharge of household wastewaters.

During field studies, it is generally observed that the slopes at the project site are slightly inclined (4.5 degrees resp. 8 % inclination) and are not affected by fluvial erosion, given the result of inclination, soil type and the precipitation regime of this site.

### **2.13. ECOLOGY AND BIODIVERSITY**

The study area comprised of the S4K project site and the surrounding area intended for Pipeline A+B, as far as this is unbuild area, shelters different agriculture and man-made habitats, combined with local natural creeks and the Ibër Lepenc irrigation channel (ILC).

North to the project site's boundaries, the Gazimestan Environmental Reserve is located, which was known for the presence of *Paeonia decora*, a species of flowering plant in the peony family *Paeoniaceae*.

However, this Reserve has drastically changed over the years, and it now reflects a continuation of the surrounding areas without any special biodiversity features. Generally, the project area harbours a composition of fauna and flora species which are typical for areas heavily impacted by human intervention.

The habitat changes are reflected in the faunistic distribution.

#### **Flora**

The presence of endemic plant species or plants included in the Red Book of Vascular Flora of the Republic of Kosovo has not been detected in the project area.

The flora of the project area is characterised by the dominance of vascular plant species that are also found in other areas of the plain-hilly region on the territory of the Kosovo Plain. In this area of the reserve with the area where the project will be implemented there are mainly plant taxa of the vascular flora from the woody life forms, shrubby and herbaceous.

Some parts that were once agro-ecosystems, are now barren lands with tendency to return to the natural state. In agro-ecosystems wheat is the usual cultivated plant. In some plots closer to the urbanized area, individuals of the invasive plant species *Reynoutria japonica* [*Fallopia japonica*] are also found.

This area is under the constant influence of anthropogenic factors.

#### **Fauna**

During the field survey within the project site, a total 10 species of animals were observed in the project area, belonging to the following taxonomic groups: Insects 3 species, Molluscs 2 species, Reptiles 1 species, Birds 2 species and Mammals 2 species.



Based on field observations, the geographical position and on habitat conditions, this area may serve as a transit route for wild boar, fox, rabbit, badger, wolf etc. However, the project area is not a permanent or crucial habitat for none of these species.

The Gazimestan Natural Reserve's composition of faunal biodiversity is not unique for a Nature Reserve, but typical for semiurban, agricultural and man-made habitats, with patches of natural areas in vicinity. The same faunal composition is noted in the shrubland nearby the project area.

During the field survey the surface water level in the Gazimestan creek was minimal in many places dry with fragmentary water patches. Eggs and few larvae of aquatic insects were noted. In the upstream area of this creek, three species of aquatic insects were observed. *Rhyacophila fasciata* and *Baetis alpinus* are widespread species in Kosovo with stable populations all over the country. *Rhyacophila macedonica* found at the same place is an endemic species of the Western Balkans, described as a new species during 2022, however such species needs constant surface water levels, not existing in that creek.

## 2.14. SOCIO-ECONOMIC BASELINE

### Location of Settlements

Locations of community settlements to be affected by the project, both directly and indirectly, cover two municipalities (Obiliq and Prishtina), and three adjacent settlements situated within a 1-2 km radius from the proposed project site: Hade-e-Re, Mazgit, and Shkabaj villages. Out of the three settlements, Hade-e-Re is classified as the area which will be directly affected by the Project, whereas the two other villages will likely be impacted only indirectly. The settlement in closest proximity to the project's site – Hade-e-Re – is a recent residential development made functional in 2013/2014. It is the relocation village set aside for former residents of "old" Hade, i.e. a dedicated relocation site for old Hade villagers who were expropriated as a result of a project entailing the expansion of the Kosovo New Mining Field (formerly known as the Sibovc mine).

Nearby the project site are both the Gazimestan monument and the tomb of an Ottoman sultan, which are both historically important monuments commemorating the Battle of Kosovo in 1389.

### Local Population

Population data for the three relevant settlements in the project's study area are summarized below:

- **Mazgit village (Obiliq Municipality):** 2,886 inhabitants in 2011, accounting for 13% of the population in Obiliq municipality. The population density in Mazgit is 452 people per km<sup>2</sup>. Mazgit is the village with the highest number of households in Obiliq Municipality (761), accounting for 10% of households.
- **Shkabaj village (Prishtina Municipality):** 1,035 inhabitants in 2011, accounting for 0.5% of the population in Prishtina municipality.
- **Hade-e-Re village (Obiliq Municipality):** Although no data on Hade-e-Re are released by the Agency of Statistics, primary sources estimate that only around 15 households reside in the new village, with a total estimated population of 75 – 85 inhabitants.

It is important to consider that the 2011 census data are outdated and do not reflect population change though. However, no other official or approximate self-reported data were available at the settlement level to reflect the population change over the years.

However, migration and population change, i.e. an overall decline, have characterized the settlements in the study area, particularly after the 1999 war and also after the population census in 2011.

### **Settlement and Housing**

According to the 2011 population census, there are a total of 44,380 households in the project study area. Approximately 40% of these households consist of 4-5 members, consistent with the national average. 93.5% of the households in the study area own their home, 4% rent their home, and 0.75% have other arrangements.

As of January 2016, 52 of the resettled households from Shala neighbourhood had obtained land titles in New Hade, 21 houses were under construction, and 12 households had moved in.<sup>6</sup> House construction and monitoring activities<sup>7</sup> took place between 2013 and 2016.

Residents who had moved into the New Hade settlement raised complaints about expecting the site to have more infrastructure and facilities – such as paved roads, a school, a health centre, a cemetery, and a market. The authorities on the other hand argued that the completion of such facilities had not been promised up front and was to happen in a phased manner as New Shkabaj's population grew with the arrival of additional households that needed resettlement as the mine expanded.<sup>8</sup>

In 2016, the Kosovo Energy Corporation (KEK) continued the further expansion of lignite mining operations in Kosovo's New Mining Field, affecting the village of Shipitullë, located north of the New Mining Field, adjacent to Hade village.

A total of 259 households were affected by physical and/or economical displacement as a result of the land acquisition process. The Shipitullë Resettlement Action Plan (RAP) was concluded by the end of 2017 and by mid-2018, the vast majority of affected people signed off their agreements and physically displaced households had moved away. Thirteen households opted for a replacement plot at the resettlement site in Hade-e-Re, while others opted for cash compensation.

Unofficial data indicate that as of 2016, approximately 15 households (of all the three above-mentioned resettlement processes) had moved in New Hade. Site visits in 2022 confirm that there are still only 22 fully constructed houses in New Hade (some are unoccupied); indicating that there has not been any housing construction between 2016 and 2021. Only in spring 2022 a small number of new houses were about to be constructed. More details with regards to the socio-economic conditions of the New Hade settlement will be provided in the following sections below.

### **Demography**

According to the 2011 census, the average life expectancy in Kosovo was estimated to be 76.7 years. The life expectancy of Roma, Ashkali, and Egyptians (RAE) was 58.7 years, approximately 18 years less than the overall life expectancy in Kosovo.

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<sup>6</sup> [The World Bank\): Investigation Report "Kosovo Power Project \(Proposed, P118287\) and Second Additional Financing for Energy Sector Clean-up and Land Reclamation Project \(P131539\)" \(2016\)](#)

<sup>7</sup> MESP commissioned an international resettlement consultancy, rePlan, to monitor the resettlement of the affected households. The first monitoring report covered the period between October 2013 and April 2014. [The second monitoring report](#) covered the period between April and September 2014

<sup>8</sup> [The World Bank\): Investigation Report "Kosovo Power Project \(Proposed, P118287\) and Second Additional Financing for Energy Sector Clean-up and Land Reclamation Project \(P131539\)" \(2016\)](#)

Kosovo has the youngest population in Europe with 53% of the population being under 25 years old. According to the 2011 census, the largest age group at that time was between 10 and 14 years old followed by 15-19-year-olds.

The age distribution in Obiliq and Prishtina, the two municipalities in the study area is quite similar to the general age distribution at the national level, with the largest category being the 10-14 age group (accounting for approximately 30% of the population in both municipalities). There are no major differences between the age distribution in the two municipalities.

Age distribution data for settlements within the project's study area are available for Mazgit village only. The largest share (65%) of the population in Mazgit village falls in the 0-34 age group.

Demographic information self-reported by the interviewees in Shkabaj and Hade e Re settlements preliminarily indicate a similar age distribution with the aforementioned national and municipal levels. The average age in both Hade-e-Re and Shkabaj is estimated to be 29.

According to the 2011 census, 49.6% of Kosovo's population are female and 50.4% are male. Such a pattern is relatively similar in the settlements in the study area, with very minor differences.

Patriarchal gender patterns are predominant. Discriminatory stereotypes regarding the roles and responsibilities of women and men in the family and society persist.

Ownership of property by women has increased over the years. However, women continue to face discrimination in the labour market and when accessing finance. They are still underrepresented, especially in decision-making positions, both in private and public institutions, even if the presence of women in politics has notably increased.

Out of 6,976 employed people in Obiliq in 2019, only 19% were female. Similarly, out of 54,316 employed people in Prishtina in 2011 (Kosovo Population Census), 35% were female. The employment situation of women in Prishtina has somewhat improved over the years and is better than that of Obiliq and other municipalities considering its heavy concentration of jobs and fading of patriarchal gender norms.

Domestic violence continues to be the most prominent form of gender-based violence in Kosovo, with cases having increased in recent years. Overall, reporting of domestic violence remains low (1,632 cases in 2020; 889 cases from January until May 2021). There has been limited progress in preventing domestic violence and protecting and reintegrating victims, including adequate victims' compensation. The functioning of the eight shelters for victims of domestic violence and trafficking in human beings is uneven mainly due to the lack of sustainable funding. Other forms of violence against women have continued.

Kosovo women living in rural areas are less likely to be autonomous in decision-making compared to their urban counterparts (particularly those living in Prishtina city or Obiliq town). At the settlement level, cultural constraints and domestic relations mean women living in villages may rely on male members of the family for financial support (husbands, fathers, brothers, etc.), which affects their voice in both household and community decision-making.

Among the two municipalities in the study area, Obiliq is more ethnically diverse, with 92% of its population being Albanian, 5.9% RAE, and 1.3% Serbian, among others.

Contrary to Obiliq, the population in Prishtina municipality is predominantly Albanian (98.7%). Data at the settlement level indicate that in the villages with the closest proximity to the project's site, the population is predominately Albanian (99% in Mazgit, 100% in Hade-e-Re, and Shkabaj).

Religion data at the settlement level are not available, however primary data indicate a predominance of Muslims.

### **Employment and Income**

There are a total of 6,980 employed persons in the municipality, of which only 19.5% are female. Women are mainly employed in the education, administrative, and healthcare sectors, while men are mostly employed in the energy and trade sectors. 5,082 people are registered as unemployed in the local Employment Agency Office, equivalent to 37% of the working-age population. However, such data do not accurately reflect the unemployment rate in the municipality, which is estimated to be higher. The energy/gas/water sector remains the sector with the largest employment, accounting for 65% of total employment, followed by transportation, storage, and communication (8%). While a public officer may earn around 300 EUR/month, a low-skilled KEK employee can earn a minimum of 700 EUR/month. On a monthly average, 780 families benefitted from the social assistance scheme in 2021.

Roughly 35% of all firms in Kosovo are located in Prishtina, a trend that has increased over time. Furthermore, 54% of jobs are in the capital city of Prishtina alone. Geographically, Prishtina accounted for 58 percent of net job creation from 2005 to 2014, while other regions registered job creation rates in single digits. As per OSCE's Prishtina Municipality Profile 2018, there are approximately 8,735 registered businesses in the municipality with around 75,000 employees (only in the private sector). Additionally, whereas all municipalities enjoyed real wage increases during 2005-2014, Prishtina recorded the highest real wages.

There are around 45 businesses and 600 people employed in Mazgit village, equivalent to 30% of the working population (as per the 2011 census). No information is available with regards to the employment of Hade-e-Re and Shkabaj residents. However, it is estimated that two-thirds of household heads (all male) in Hade-e-Re and Shkabaj are employed, with the vast majority of them (more than 70%) working for KEK, in either mining or professional positions. The average income of employed persons residing in the three impacted villages is estimated to be 250 – 500 Euro. During consultation meetings, unemployment was reported as an issue of urgent concern by inhabitants of the settlements consulted.

### **Economy and livelihoods in the study area**

The economy of Obiliq municipality is predominantly based on electrical energy production, agriculture, and small trade businesses. Except for KEK, which is the main operator and employer in the area, there are 520 small and medium-sized enterprises (512 private and 8 public) registered in Obiliq municipality, with the majority of them (31%) dealing with the provision of various services, trade (16.5%), and accommodation and gastronomy (13%). Agriculture enterprises represent 7.5% of the businesses in the municipality,

The economy of Prishtina municipality is based on a wide range of economic activities including construction, agriculture, communications, trade, and tourism. There are over 8,735 registered businesses with approximately 75,000 employees. Prishtina is the largest

local economy at the national level, which has succeeded in attracting around 60% of the investment share due to the infrastructure, human capital, and developed market.

The main source of income for the majority of households (around 57%) in both Obiliq and Prishtina municipalities is financial support received from family members or others (excluding remittances).

### **Industry**

Kosovo's current energy production facilities are concentrated in Obiliq municipality and comprise of Kosovo A and Kosovo B power plants, which are under KEK operation. KEK is the main industrial operator in the study area and one of the key employers.

KEK is also operating the Sibovc SW lignite mine in the Obiliq Municipality, which supplies coal to the two operational power plants. The currently operational mine is located in the area of the settlements of Hade, Lajtishte, Shipitullë, and Sibovc. Parts of these settlements have been resettled to allow mine expansion. The current mine has an operational license until 2027.

### **Agricultural Production**

Around 88% of the territory in Obiliq municipality is used for agricultural purposes, thereof 54,5 % arable land (3,413 ha). According to the Agriculture Census 2014, approximately 1,950 households (with 5.087 labour force) in the municipality are engaged in farming at some level. The primary products farmed in the municipality are wheat (53% of land), potatoes (5%), peppers, fruits (4%). Annual subsidies are offered to farmers by the municipality, in the amount of USD 150 – 400 / ha.

Livestock in Obiliq municipality is relatively low. Approximately 8,082 households are engaged in animal husbandry. According to the Department of Agriculture, there are approximately 37,000 poultry, 2,000 cows, 1,400 sheep, and 200 goats in the municipality. Cattle are mainly concentrated in mountainous areas, such as Shipitullë and Sibovc. The beekeeping sector has seen some promising developments in recent years.

Prishtina municipality has a share of arable land, at 26.7%, equalling 5,178 ha. There are approximately 3,381 agricultural holdings in the municipalities whereas the total number of the agricultural labour force is 10,990 as of 2014 in Prishtina. The primary products farmed are wheat (at 55% of arable land), corn (18% of land), as well as potatoes (on 5% of land), fruits (on 4 % of land; mainly apples, plums, and pears).

Livestock in agricultural holdings of Prishtina municipality is higher (6 units/holding) in comparison to that of Obiliq (4 units/holding). Prishtina municipality accounts for 2,8% of all cultivated livestock in Kosovo. According to the Agriculture Census 2014, there are more than 95,000 poultry, 7,000 cows, 5,800 sheep, and 1,200 goats in the municipality. Prishtina municipality is also home to 2% of agricultural holdings engaged in cattle cultivation, 3.5% of agricultural holdings engaged in poultry cultivation, and 6% of beekeepers.

Similarly, to Mazgit and Shkabaj, agriculture in Hade-e-Re is practiced on a small scale, with residents making use of their land plots to cultivate crops and vegetable gardens to complement household consumption. It is reported that most landowners in the settlements in the study area do not own plots exceeding 1 ha. Most owned parcels range between 500 and 1000 m<sup>2</sup>.

### **Education**

There are 20 primary and lower secondary schools in Obiliq municipality with approximately 300 teachers and staff, 3 secondary schools (high schools) with 70 teachers and staff, and one kindergarten with 9 teachers and 6 supporting staff.

In Prishtina municipality, there are a total of 43 primary and lower secondary schools with approximately 2,070 employees, 14 secondary schools with 800 employees, and 14 kindergartens with approximately 300 employees. Prishtina also hosts the public university "Hasan Prishtina," the main education institution with 14 faculties, providing education for around 53,000 students.

There are two primary schools in Mazgit village and one primary school in Shkabaj village. There is one primary school in Hade-e-Re, which became functional only recently, namely in August 2021. In general, most school buildings at the settlement level are in fairly good condition. The majority of households in Hade-e-Re reported some difficulties accessing education. The most prevailing restriction mentioned was the distance to school facilities, followed by the cost and lack of transportation.

Before the school in Hade-e-Re was opened, Hade-e-Re children attended school in Shkabaj village, located just over 1 kilometre (approximately 10 blocks) from the Hade-e-Re site. Informal engagements with households revealed that it took children only 20 minutes to walk from home to school. This distance is well within the standards in urban areas in Kosovo.

Literacy rates in the study area are relatively high with approximately 95 % of the population able to read and write. Educational attainment varies by gender with a higher percentage of women having completed primary and lower secondary school (27% compared to 17% of men) but a higher percentage of men having obtained secondary and higher education.

The situation in Hade-e-Re (and generally in all three affected settlements) differs vastly from that in Obiliq municipality with the majority of its adult residents having completed an average of 5-8 years of schooling. A small portion (estimated 5% of the population; majority females; age cohorts 40+) of the affected population in Hade-e-Re has not attended any form of formal education, and most of them are not able to read and write.

With regards to Prishtina municipality, 36 % of residents above the age of 10 completed primary and lower secondary education, 38 % have completed secondary education, 13 % have a bachelor's degree, and only 3 % have completed graduate studies (master's degree and PhD). 8 % have no schooling completed.

Children from the Kosovo Ashkali and Kosovo Roma communities are enrolled in the Kosovo curriculum education.

During the 2020-21 academic year, a total of 4,044 pupils were enrolled in pre-primary, primary and lower secondary, and secondary education, in the Municipality of Obiliq. The proportion of male students was slightly higher than that of females, 52.1 % compared to 47.9 %. Approximately 96 % of pupils were Albanian, 3.7 % were RAE, and 0.03 % were Bosniacs.

Prishtina has the highest number of pupils in Kosovo, with 43,492 pupils enrolled in pre-primary, primary and lower secondary, and secondary education during the 2020-21 academic year.

Similarly, to Obiliq municipality, the percentage of males enrolled was higher than that of females, namely 50.8 %. In comparison to Obiliq, pupils in Prishtina are predominantly

Albanian (99 %), followed by Turkish minorities (0.6 %), RAE (0.14 %), and 0.07 % Bosniacs and Gorani.

### **Health**

The primary health care system in Obiliq Municipality currently includes one main family medicine centre (MFMC) located in Obiliq town and 5 health houses in the surrounding villages. Additionally, there are three non-functional Ambulatory Health Care Units in Obiliq Municipality, namely in Mazgit, Caravadicë, and Shipitullë. The non-functional health care units have remained closed due to lack of funds to support medical staff at those centres. The University Clinical Centre of Kosovo (UCCK) provides secondary and tertiary care to residents of Obiliq Municipality. Private clinics in the municipality of Obiliq are only located in the city of Obiliq. The health sector in Obiliq has 101 employees, including doctors, nurses, and support staff; 60 women and 41 men.

Considering its small number of households and residents, Hade-e-Re does not have a health centre. The closest primary health care facility accessible by Hade-e-Re residents is near the village school in Shkabaj.

The primary health care system in Prishtina Municipality includes one main family health centre, 16 municipal family health centres and 13 health houses in the surrounding villages, and 1 emergency health centre. The health sector has 843 employees, including doctors, nurses, and support staff; 210 women and 633 men. Prishtina also hosts the University Hospital where secondary and tertiary health care is provided by 3,600 staff. There is one Serbia-run healthcare facility. There is one Serbia-run healthcare facility in Bërnica e Poshtme. Kosovo Serbs residing in Prishtina municipality also use Serbia-run secondary health care services in Gračanica municipality and the hospital located in North Mitrovica.

There are no local health clinics in the three settlements in the study area. As such, residents of these settlements have consistently less access to quality healthcare.

Within both Obiliq and Prishtina municipalities, chronic diseases, in particular, cardiovascular diseases and cancer, are the leading cause of mortality. In 2018, cardiovascular diseases accounted for 57.4% of the total causes of death in Obiliq municipality and 42.3% in Prishtina. The second cause of total deaths in both municipalities were tumours, followed by respiratory illnesses.

Obiliq and Prishtina municipalities are considered to be one the most contaminated regions in the country. The main contributors to air pollution in these municipalities are the industrial facilities of the Kosovo Energy Corporation (KEK), namely the Sibovc coal mine, Kosovo A and B power plants, and ash deposit areas.

Respiratory illnesses resulting from environmental contamination are cited by health authorities as one of the leading causes of morbidity in both Obiliq and Prishtina municipalities. According to the National Institute of Public Health of Kosovo (NIPHK), the presence of malignant diseases in the municipality of Obiliq is 30% higher than the national average.

Tracking work accidents and occupational diseases is difficult as official data are not reliable. The available data for Kosovo show a rate of fatal work accidents of 2 cases per 100,000 workers which is close to the EU average (1.8 cases). A look at non-fatal work accidents provides further reasons to believe that official data are incomplete. Kosovo reports 17 cases per 100,000 workers while the EU average is 1,660 cases.

Currently, there are only two specialized occupational health (medicine) services in Kosovo, one in Gjakova and the other in Obiliq. The Institute of Occupational Medicine in Obiliq works as a private, outpatient medical centre. Since 2006, the institute functions as a joint-stock company within KEK, although it also performs medical services (including occupational medicine) for any company within Kosovo.

### **Land Use and Ownership**

The total land area of Obiliq Municipality is 105 km<sup>2</sup>. According to Obiliq Municipality, 72 % of the territory of the municipality is classified under the Zone of Special (Economic) Interest and is occupied by Kosovo A and B power plants, former Bardh and Mirash surface mines, high voltage grid, ash dump sites, and operational Sibovc lignite-mine area.

The Municipality has constantly been losing land for the expansion of the Sibovc lignite mining operations. 56 % of the land in Obiliq municipality (5,862 ha) is privately owned; 44 % (4,620 ha) is publicly owned (15 % of which is owned by KEK). 62 % of the land is agricultural, followed by mineral extraction sites (12%), forest land (11%), and residential land (9%).

The total land area in Prishtina municipality is 572 km<sup>2</sup>. Prishtina is the region with the largest arable land area at 27.7%. The majority of agricultural land is privately owned (80%), providing primarily subsistence farming for individual households. Accurate and credible data with regards to other land types and uses in Prishtina municipality is not available.

Land use at settlement level: Most households in the settlements in the study area do not own plots exceeding 1 ha. The average size of owned land ranges from 500 – 1000 m<sup>2</sup>, with very few households owning land that is larger than 1000 m<sup>2</sup>. This supports the conclusion that in these villages, agriculture is practiced on a small scale and mostly for personal consumption.

### **Public Infrastructure**

**Road and Transport Infrastructure.** Management and maintenance of all regional roads are the responsibility of the Government of Kosovo. The local infrastructure department deals with municipality and village roads. Approximately 70 % of the roads in Obiliq municipality connecting villages with the urban centre are asphalted and in good condition. All other roads are either asphalted but in poor condition, in need of rehabilitation, or require construction. In Prishtina municipality, all the roads connecting villages with the urban centre are asphalted. Approximately 50 % of the capital investment annual budget in recent years has been allocated for the construction of new roads and improvements to the existing ones, including the supporting infrastructure such as lightning, sidewalks, and street furniture

Settlements in the study area did not report any constraints with accessing municipality urban centres. More than half of the households own a private car, whereas the rest use public transportation or other means of transportation for traveling purposes. In 2014 the municipality of Obiliq added a new route for public transportation to the area of Hade-e-Re.

**Water Supply.** Water supply in the municipality of Obiliq municipality is mainly done through the Regional Water Supply of Prishtina (RWSP), and the municipal water supply (covering 13 settlements or 72% of the settlements in the municipality). The municipal water supply has a supply capacity of 42 l / sec. Water supply from underground sources (wells in yards) covers 5 settlements or 27% of the municipality. According to information



from the municipal institutions of Obiliq, 95% of the population is supplied with drinking water. Water restrictions in the municipality are common and occur mostly during Summer.

All three settlements located in the study area have access to piped water from the Prishtina Regional Water Supply Company (RWC), which sources its water from Batlava Lake, Gračanica River, and Ibër–Lepenc canal, and supplies seven municipalities, including Obiliq. Shkabaj village is also home to a recently built water RWC plant, which was built by the Western Balkans Investment Framework (WBIF) entailing the development of a new water source from the Gazivoda Lake. All households in Hade-e-Re have direct and reliable access to water. The abundant access to water in Hade-e-Re has resulted in higher water consumption rates for vegetable gardens and complementary agricultural activities for self-consumption. This in turn has caused an increase in the water bills, which is seen as a source of concern by affected households.

Prishtina city and most of the villages in Prishtina municipality are connected to the water supply system (data regarding the exact number of villages not connected to the water supply system is not available). The rapid growth of the population of the City of Prishtina has led to chronic water shortages which are estimated to become worse, given the rapid population growth in the city. The situation is exacerbated by the high level of water losses, estimated at over 50%, and very low collection ratios of below 50%, a likely consequence of consumer dissatisfaction with the poor level of services. Low water pressures and daily rationing of supplies lasting between eight to 12 hours are common. In addition, some of the recent urban developments in the city cannot be served by the existing system. Existing water supply sources are therefore grossly inadequate for a modern city and surrounding areas with a current population estimated at over 500,000.

**Irrigation.** The majority of settlements in the study area have access to the irrigation network/system which is managed by the Hydro-Economic Enterprise "Ibër-Lepenc". In 2019, the area of agricultural land under irrigation is 2,153 ha (out of 6,852 ha of total agricultural land), whereas the area under the Ibër-Lepenc irrigation system is 469.84 ha. In Shkabaj and Mazgit villages, water for irrigation is also sourced from a combination of Ibër-Lepenc channels, ground wells, and private wells. Households in Hade-e-Re have individual wells for own consumption and small-scale agriculture activities for self-consumption, primarily through greenhouses.

**Sanitation.** While Obiliq municipality is considering a wastewater treatment plant, the Sitnice River remains the receiving waterbody for the majority of domestic wastewater from Fushë Kosova, Obiliq, Vushtrri, and Prishtina municipalities (discharged without any prior treatment). Overflows of the river during heavy rains were cited by the municipal officers as a public health concern as biological contaminants have been found in the nearby agricultural fields after flooding events.

All households in Hade-e-Re have access to indoor toilets and public sewage systems. While the majority of households in the settlements in the study area have access to a piped sanitary line, many of the more rural settlements also utilize backyard latrines. Local respondents reported that ethnic minorities, including Roma and Ashkali, are less likely to have access to a piped sanitary line.

**Waste management.** Both Obiliq and Prishtina municipalities provide municipal waste collection and transport services, however, there are shortcomings in coverage as well as issues with unreliable data on the number of households covered by the waste service. Whereas in Prishtina the household municipal waste collection and transport service

coverage rate stood at 100% in 2020, in Obiliq, the rate stood at 82% in 2020. The municipal waste collection currently costs 5 Euros/month per household. In addition to inadequate waste collection coverage and waste management, trashing, burning, and illegal dumping are common practices in the study area, in particular in the poorer communities where households reportedly do not (or cannot) pay for waste collection. Illegal dumpsites are common in the study area, with a total of 313 of them identified in the Prishtina region in 2020.

The Prishtina Landfill (Mirash) Regional Landfill is located in Obiliq Municipality directly south Caravadicë (within 0.5 kilometres), and western adjacent to the current Kosovo A and Kosovo B ash deposit pond. The landfill hosts waste from seven municipalities: Prishtina, Drenas, Lipjan, Podujeva, Gračanica, Obiliq, and Fushë Kosova. It is the largest landfill in Kosovo and is located in the old Mirash mining pit. A third of all the waste produced by Kosovo inhabitants (approximately 100,000 tons annually) ends up in the Mirash landfill. The most serious problem associated with the landfill is a malfunctioning leachate recirculation system and the surface drainage system that leads to flooding of a mixture of leachate, rainwater, and groundwater. Other problems include self-starting fires, methane gas releases and explosion risks, garbage flying away (lack of daily cover), and a heavy odour due to a lack of a degassing system.

**Energy.** Today, Kosovo's electricity operating capacity is about 900 MW, almost all of which comes from two antiquated coal-fired power plants, Kosovo A and Kosovo B. Both municipalities are expected to experience heightened daily power cuts after the government decided to implement emergency measures to deal with the 2022 Europe energy crisis. The distribution of electricity in both municipalities is managed by KEDS/KOSTT (Kosovo Energy Distribution Services).

**Heating.** Currently, only one district heating is in operation, and that is TERMOKOS in Prishtina. TERMOKOS, an enterprise owned by the Municipality of Prishtina, provides service for approximately 14,000 apartments in Prishtina through the distribution of piped hot water heat from a central plant. The majority of households in the villages in the study area have central heating systems installed (e.g. 50% of households in Hade-e-Re), while the rest rely on firewood and coal (usually local lignite) for household heating.

#### **Disadvantaged or Vulnerable Individuals or Groups**

Herewith below are identified individuals and groups in the study area who, as a result of a broad range of factors, may be more exposed to certain vulnerabilities in comparison to the general population. Disadvantaged and vulnerable groups in the project's study area are considered to be:

- Women.
- Roma, Ashkali, and Egyptian (RAE) minorities
- Children
- Youth
- Elderly people
- People with disabilities
- LGBTQI+
- Low-Income Households

### **2.15. TRAFFIC AND TRANSPORT**

The project site can be served from its eastern boundary, which is a paved 2x1 road "Rr Batalioni Atlantiku" which connects the village of Shkabaj with the Bajraktar's Tomb and

leads further north towards Prishtina and a newly built Trade Fair Hall. Traffic intensity of this road is low, given its character as village access road.

Off the western boundary of the project site and west of Hade-e-Re settlement, there is the 2x2 lane style Expressway M2 (Kastrioti Road), connecting Prishtina with Mitrovica in North Kosovo. Based on traffic flow measurements<sup>9</sup>, this road section shows an average vehicle traffic for expressways with approx. 20 000 vehicle/ 12 hours.

A ring road of Prishtina is intended to form the southern boundary of the project site, connecting R7 Motorway and M2 Expressway in the west with the valley of Shkabaj and Northern Prishtina in East/Northeast. This ring road is in the stage of Pre-Feasibility study, co-financed by EBRD.

Further impacted roads along the alignment of the Connection Pipeline A might be:

- the Rr. Qemal Stafa in the valley of Shkabaj, with approx. 550 m parallel pipelining
- as well as Rr. Stambolli, with approx. 700m pipelining in road alignment
- and Toni Blair Street in Arberia, near KFOR area, with approx. 110 m pipelining.
- the Zagreb and Tirana Roads, approx. 200 m pipelining next to streets.

Traffic volume along the Tirana Street and Zagrebi Streets separating the Arberia Hill from Tophane Area and leading in parallel to the rail line out of service, is deemed high and characterised by congestion on the peak hours. The other roads are of moderate traffic intensity.

Impacted roads for the Infill Pipeline B are a culvert under M2 expressway as well as 400 meters of a local road (Road H) in the Hade-e-Re settlement with very low traffic.

The Sustainable Urban Mobility plan of Prishtina revealed that the level of traffic accidents with injuries is steadily rising. The number is almost three times higher in Prishtina area than the EU average (cases per 1.000 inhabitants).

## **2.16. CULTURAL HERITAGE AND ARCHEOLOGY**

There are two main tangible heritage sites located within <1km of the project's site which should be particularly given close attention to during the social impact assessment:

- Gazimestan Monument, 20th c. (closest to project's site)
- Bajraktar's Tomb, Shkabaj village, 15th century.

The Gazimestan area comprises both the Gazimestan monument of the Serbian minority and the Ottoman tomb of Bajraktar. The two monuments both commemorate the Battle of Kosovo in 1389. The Gazimestan monument (built 1953) and its surroundings are specially protected as cultural or religious monument of the Serbian minority of Kosovo through the Law on Specific Protective Zones No. 03/L-039.

The Bajraktar's Tomb (built in 15<sup>th</sup> century, refurbished in 2010) is located in the north-eastern vicinity of the project site and connected with Batalioni Atlantiku Street. No additional buffer zone is dedicated around this tomb plot, according to the law. It is freely accessible.

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<sup>9</sup> Sustainable Urban Mobility Plan 2018 of Prishtina, including also Obiliq.

Near to Bajraktar's Tomb (opposite side of road), the Cemetery of Shkabaj (Municipality of Prishtina) is located. This entails two parts with 100 graves each, as well as two smaller tomb buildings.

In relation with the Geotechnical surveys in November 2021 an on-site assessment has been conducted by the Archaeological Institute of Kosovo, that provided its consent on 20.01.2022 for the location where the project will be realized. The given consent by the Archaeological Institute of Kosovo (AIK) concludes that there are no archaeological traces in the project site known.

During the site field investigations, the project experts faced another sensitive issue considered to be a culturally sensitive subject for local inhabitants according to traditional habits. Inside the foreseen plant site 6-7 modern Muslim graves are situated in accordance with the intended cemetery as per the Urban regulation plan for Hade-e-Re settlement. From interview, it was clarified, that graves belong to families, having been resettled to Hade-e-Re.

As formulated in the Agreement between MESPI with the Municipality of Obiliq from 23<sup>rd</sup> March 2022 for exchanging the ownership of selected land plots (cf. subsection 2.4.3) in order to enable the Ministry's temporary landownership of the project site, the Municipality of Obiliq expressed the wish, to establish a new cemetery closer to Hade-e-Re settlement<sup>10</sup>, to be located south to the Project site and of a future ring road. The Agreement requires the Municipality of Prishtina to be involved in this procedure.

The Municipality of Obiliq considered to relocate these graves to a new cemetery for Hade-e-Re<sup>11</sup>, if possible.

The Lenders (KfW and EBRD) have clearly insisted that for the purpose of the project, a relocation of graves shall not take place. The land in which the graves are located must be exempted of any construction activity, as any activity close to the graves will not be approved by the lenders. In case, the relatives would agree with a exhumation and relocation of graves, TERMOKOS can support the affected people, but the Project will not use the land.

## **2.17. LANDSCAPE AND VISUAL IMPACT**

The landscape in the study area is characterised by manmade and few remaining wilderness terrains. Nearby the project site there are human settlements and agricultural lands. The surroundings of the study area are under intensive infrastructure developments of settlements and infrastructure which have turned most of the areas into barren lands.

The study area could be divided at least in 2 landscape units:

- *The project site with gentle rolling terrain, confined by the episodic Gazimestan creek, the Gazimestan zone, the Hade e Re settlement*
- *The semi-urbanized area of Shkabaj with scattered businesses and residential houses at, where the project pipelines A+B are going to be placed;*

The area belongs to the lowland-hilly area of Kosovo. It is characterized by a slightly sloping terrain in the north-northwest direction. The area is bordered on one side by the

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<sup>10</sup> Clause 5.3 5.3. The municipality of Prishtina will relocate the graveyard from Cadastral parcel no. 1879-472 to the new "Cemetery" location within the "Hade e Re" location in Shkabaj village.

<sup>11</sup> Minutes of Technical meeting of 15<sup>th</sup> of March 2022 at Municipal Hall of Obiliq (MESPI, Prishtina, Obiliq, TERMOKOS, ESIA Consultants)

Gazimestan Protected Area, on the other side by the Bajraktar's Tomb Area, and for the most part by semi-urbanized area and the M2 Prishtina-Mitrovica express road and the Ibër Lepenc irrigation canal.

Most of the proposed project area belongs to ecosystems under the influence of anthropogenic factors. These agro-ecosystems are partially planted with agricultural crops, although significant portions are not being cultivated nowadays and succession to return to their natural state has begun. Within the agro-ecosystems, there were some plots planted with wheat, while other parts were uncultivated (wasteland). It was noticed that most of these plots were treated with herbicides, therefore the development of species which are considered weeds had stagnated.

### **3. SIGNIFICANT ENVIRONMENTAL AND SOCIAL IMPACTS**

#### **3.1. KEY SENSITIVE RECEPTORS**

The ESIA expert team has familiarized with the current situation in the project area. The consultant has identified the main receptors and elements, i.e. those living beings and protected goods that may be positively or negatively affected by changes that are caused by the intended projects.

As a result, it was observed that at the project site, the Pipeline Corridors or along its boundaries are or will be located:

- the residents of Hade-e-Re (school users, house owners, road users),
- the users of agricultural lands,
- a few local businesses along the future pipeline alignments (car repairs, indoor sports facilities, others),
- the construction workers during construction and decommissioning phase,
- the operating staff during operation phase,
- the visitors of the Serbian monument of Gazimestan,
- the visitors of the Muslim Bajraktar's Tomb,
- the visitors and surviving family members of 6 graves placed in the project site.

Other sensitive receptors are:

- the flora and fauna of the natural protected area around Gazimestan,
- the neighbouring natural waterbodies Gazimestan creek and the two Shkabaj creeks and the Ibër-Lepenc irrigation canal
- the visual landscape in the project site near Hade e Re.
- the regional water availability (water source is the Lake Gazivoda, an artificial lake formed by the damming of the Ibër river in North Kosovo, which is connected with the 60 km long Ibër-Lepenc Canal).

### 3.2. SAMPLING AND TESTING

On this basis, it was concluded that it is necessary to undertake tests for the sensitive aspects that the project may affect in the receptors closest to the area where the project will be implemented.

The following baseline surveys, i.e. primary data collection and lab analyses, were undertaken during the preconstruction phase to assess the conditions prior to the project's detailed design and any construction works taking place:

- to define the boundaries of the land in use for the project without compromising the status of land use for the identified sensitive aspects,
- noise tests at various points,
- total dust samplings at various points,
- geotechnical investigations and
- Chemical sampling and analysis of soil and surface waters
- observation of the flora and fauna of the area.
- Socio-economic desktop studies, surveys/interviews
- Spatial analysis of zoning and land-use planning

As regards the availability of water resources for the pit storage filling. It was confirmed to the Feasibility Study authors, in 2022 by the Regional Water Corporation of Prishtina, whereas the feasibility team has proposed a suitable solution in terms of amount and timing.

### 3.3. ASSESSMENT METHOD

The impact assessment will be based on an assessment of the identified positive and/or negative impact from the Project based on a set of social/socio-economic categories with the use of a Risk Assessment Matrix.

Likelihood: criteria that will be used for determination is:

<b>Likely</b>	Consequence very likely to occur, already planned.
<b>Possible</b>	Expected but not planned; has occurred on numerous similar project; is a common consequence of such a project.
<b>Unlikely</b>	Not expected, uncommon consequence of such projects.

The severity of an impact is categorized:

<b>Significant</b>	Large impact and large influence.
<b>Moderate</b>	Effects are perceived and influence several groups of stakeholders.
<b>Minor</b>	Effects are observed.

<b>Insignificant</b>	Little to no effect on stakeholders, if impact occurs.
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The qualification will consider the likelihood of the impact (likely, possible or unlikely) and the severity of the impact (insignificant, minor, moderate or significant). The colour indicates whether the **impact** is very high, high, medium or low (positive or negative) or not significant. The results are to be found by combining the likelihood and the severity/magnitude of the impact. The Risk Assessment Matrix is presented in the table below:

**Table 3.1: Risk Assessment Matrix / Significance**

		Severity of impact							
		Negative				Positive			
		Significant	Moderate	Minor	Insignificant	Insignificant	Minor	Moderate	Significant
		<i>High impact with large influence</i>	<i>Effects are felt and influence some stakeholders</i>	<i>Effects are observed</i>	<i>Little to no effect if impact occurs</i>	<i>Little to no effect if impact occurs</i>	<i>Effects are observed</i>	<i>Effects are felt and influence some stakeholders</i>	<i>High impact with large influence</i>
<b>Likelihood of impact</b>	<b>Unlikely</b> <i>Impact is unlikely to occur</i>	Medium impact	Low impact	Insignificant impact	Insignificant impact	Insignificant impact	Insignificant impact	Low impact	Medium impact
	<b>Possible</b> <i>Impact will likely occur</i>	High impact	Medium impact	Low impact	Insignificant impact	Insignificant impact	Low impact	Medium impact	High impact
	<b>Likely</b> <i>Impact is expected to occur</i>	Very High	High impact	Medium impact	Low impact	Low impact	Medium impact	High impact	Very high

The following table gives the verbal definitions of the impact significance.

Significance	Definition and Mitigation
Negligible	Not significant. Impacts with a “Negligible” significance are expected to induce changes that are indistinguishable from the baseline or are comparable to the natural level of variation. These impacts do not require mitigation and are not a concern of the decision-making process.
Low	Detectable but not significant. Impacts with a “Low” significance are expected to induce some noticeable changes to baseline conditions but are not expected to cause any hardship, degradation, or impairment to the social environment/communities. However, these impacts warrant the attention of decision-makers and should be avoided or mitigated where practicable.
Medium	Significant. Impacts with a “Medium” significance are likely to be noticeable and result in lasting changes to baseline conditions, which may cause some hardship to or degradation of the environment/communities. The project may be compromised if this impact cannot be avoided or mitigated (i.e. to reduce the significance of the impact).
High and Very High	Significant. Impacts with a “High” and “Very High” significance are likely to cause changes that severely disrupt the environment/communities and may have broader systemic consequences (e.g. social well-being). It is unlikely that an impact of this magnitude can be satisfactorily mitigated.

Positive impacts are those having a positive benefit on the existing environment or communities and are likewise scaled as negative impacts above.



### 3.4. LIST OF IMPACTS

and below summarise the anticipated impacts studied throughout the ESIA, including the Project's planning and construction, operation, and decommissioning phase, presented separately for environmental and social impacts.

The information in the tables includes:

- Key environmental topics (e.g. air quality, noise);
- Impact (textual description);
- Phases (planning, construction, operation and decommissioning)
- Nature of impact (negative or positive);
- Duration (permanent or temporary);
- Severity (significant, moderate, minor, insignificant);
- Likelihood (likely, possible, unlikely)
- Effect (direct, cumulative)
- Significance (very high, high, medium, low, insignificant);
- Mitigation – this describes whether impact can be mitigated or not. In addition, recommendations have been provided for positive impacts that aim to enhance the impact. Hence, those collectively have been referred to as mitigation measures (mitigation and recommendations) also covered in the ESMP; and
- Residual impacts after mitigation measures are implemented (key, minor, or not significant).

Additional details on each attribute and impact assessment process are provided throughout the subsequent chapters.

**Table 3.2: Summary of Anticipated Environmental Impacts**

Environmental Topic	Impact	Phases				Impact Assessment							
		Pre-Construction	Construction	Operation	Decommissioning	Nature	Duration	Severity	Likelihood	Effect	Impact Significance	Mitigation	Residual Impact
Geology, Soil and Groundwater	Soil investigation has proven increased content of Nickel and Zinc in soil. During manipulation, metal containing soil dust could be inhaled (besides quartz inhalation) by workers and road users.	NO	YES	NO	NO	Negative	Temporary	Minor	Possible	Cumulative	Low	Dust Management	NO
	Hazardous effluents associated with construction, decommissioning and O&M activities to enter soil, groundwater and surface water. Accidental spills of vehicle fuels and oils.	NO	YES	NO	NO	Negative	Temporary	Moderate	Possible	Direct	Medium	Spill Management and EHS measures	YES
		NO	NO	YES	NO	Negative	Temporary	Moderate	Unlikely	Cumulative	Low		NO
	Groundwater drawdown due to storage pit and pipeline construction works may influence the recharge of any nearby wells.	NO	YES	NO	NO	Negative	Temporary	Minor	Unlikely	Indirect	Insignificant	Monitoring of springs	NO
	Groundwater drawdown due to a permanent drainage around storage pit may influence the function of any nearby episodic spring.	NO	NO	YES	NO	Negative	Permanent	Minor	Unlikely	Indirect	Insignificant	Monitoring of springs	NO
Excavated Material to be inappropriately disposed of and accumulated in the vicinity of the site.	NO	YES	NO	NO	Negative	Permanent	Moderate	Possible	Direct	Medium	Landscaping and appropriate disposal on sanitary landfills	NO	
Water and Wastewater	Initial filling of storage pond affects municipal water supply	NO	YES	NO	NO	Negative	Temporary	Significant	Likely	Direct	High	Management and Coordination on infill	NO
	Crossing of pipelines through or under surface waterbodies, may disturb of the physical structure of the waterbody its water quality its aquatic life and the local visual landscape.	NO	YES	NO	NO	Negative	Temporary	Significant	Likely	Direct	Very high	Innovative minimal invasive pipe laying method.	YES
	Silt and clay particles can run to near waterbodies, impacting water quality in the immediate vicinity of the construction works.	NO	YES	NO	NO	Negative	Temporary	Moderate	Possible	Direct	Medium	Pollution control	YES
	Panel cleaning spills.	NO	NO	YES	NO	Negative	Temporary	Minor	Likely	Direct	Medium	Avoid Detergents	NO
Air Quality	The project itself will not create further air pollutant growth	NO	NO	YES	NO	Positive	Permanent	Significant	Likely	Cumulative	Positive Very High		NO
	Soil dust production and spreading due to excavation works and soil transfer to land fill. Quartz dust might be inhaled by humans and might pollute/cause sedimentation in neighbourhood incl. cultural heritage.	NO	YES	NO	NO	Negative	Temporary	Moderate	Possible	Direct	Medium	Dust Management	NO
	Emissions from vehicles and machinery / equipment	NO	YES	NO	NO	Negative	Temporary	Moderate	Likely	Cumulative	High	Reduce Emissions where possible	YES
Noise and Vibration	Noise coming from digging.	NO	YES	NO	NO	Negative	Temporary	Moderate	Likely	Cumulative	High	Noise Control and monitoring	NO
	Noise from construction and decommissioning traffic.	NO	YES	NO	NO	Negative	Temporary	Moderate	Likely	Cumulative	High	Noise abatement measures	YES
		NO	NO	NO	YES	Negative	Temporary	Minor	Likely	Cumulative	Medium		YES
	Vibration from construction and decommissioning works and traffic.	NO	YES	NO	NO	Negative	Temporary	Minor	Possible	Cumulative	Low	Vibration abatement measures	YES
		NO	NO	NO	YES	Negative	Temporary	Insignificant	Possible	Cumulative	Insignificant	Vibration abatement measures	NO
Running Machinery, Pumps and Transformers	NO	NO	YES	NO	Negative	Permanent	Minor	Likely	Cumulative	Medium	Noise abatement measures	NO	
Stormwater Management and Erosion Control	The Pit storage may leak to soil and/or to watershed and chemicals may pollute the groundwater body.	NO	YES	NO	NO	Negative	Temporary	Significant	Unlikely	Direct	Medium	Dam Safety Control	NO
		NO	NO	YES	NO	Negative	Temporary	Significant	Unlikely	Direct	Medium	Dam Safety Control	NO
		NO	NO	NO	YES	Negative	Temporary	Significant	Unlikely	Direct	Medium	Dam Safety Control	NO
	The Pit would collapse, and hot water would surge and inundate the watershed incl. Roads and houses.	NO	NO	YES	NO	Negative	Permanent	Significant	Unlikely	Direct	Medium	Dam Safety Control	YES
	During pit storage and pipeline construction silt and clay particles can be mobilized and reach existing aquifers and near waterbodies.	NO	YES	NO	NO	Negative	Temporary	Minor	Possible	Direct	Low	Sealed drainage system	NO
Stormwater mixed with erosion material to effect aquatic life in receiving waterbodies through turbidity, deviation or blocking of the creeks.	NO	YES	NO	NO	Negative	Temporary	Moderate	Unlikely	Direct	Low	Basic Erosion prevention Measures and Site Management	NO	

Environmental Topic	Impact	Phases				Impact Assessment							
		Pre-Construction	Construction	Operation	Decommissioning	Nature	Duration	Severity	Likelihood	Effect	Impact Significance	Mitigation	Residual Impact
Stormwater Management and Erosion Control	Stormwater mixed with erosion material to effect aquatic life in receiving waterbodies through turbidity, deviation or blocking of the creeks.	NO	NO	NO	YES	Negative	Temporary	Moderate	Unlikely	Direct	Low	Basic Erosion prevention Measures and Site Management	NO
	Harming or damaging Construction site by stormwaters including safety of workers.	NO	YES	NO	NO	Negative	Temporary	Moderate	Unlikely	Direct	Low	Basic Erosion prevention Measures and Site Management	NO
	Harming or damaging Construction site by stormwaters including safety of workers.	NO	NO	NO	YES	Negative	Temporary	Moderate	Unlikely	Direct	Low	Basic Erosion prevention Measures and Site Management	NO
	Fluviatile erosion could cause mudslides and soil transfer soil deposits at construction site onto surroundings causing impacts on the Community Health & Safety of residents and other third persons in place.	NO	YES	NO	NO	Negative	Temporary	Moderate	Unlikely	Direct	Low	Basic Erosion prevention Measures and Site Management	NO
Ecology and Biodiversity	During Borehole Drilling/Trial pit Excavation and similar: Habitat degradation, biodiversity losses; Reduction of breeding success in the vicinity of the project; Reduction of food resources for fauna species."	YES	NO	NO	NO	Negative	Temporary	Minor	Possible	Cumulative	Low	Best practice protection measures	YES
	Habitat degradation, biodiversity losses; Damage or destruction of breeding sites for fish and benthic species; Reduction of breeding success in the vicinity of the project; Reduction of food resources for fauna species.	NO	YES	NO	NO	Negative	Temporary	Moderate	Possible	Cumulative	Medium	Best practice protection measures	YES
	Habitat degradation, biodiversity losses; Damage or destruction of breeding sites for fish and benthic species; Reduction of breeding success in the vicinity of the project; Reduction of food resources for fauna species.	NO	NO	YES	NO	Negative	Permanent	Moderate	Unlikely	Cumulative	Low	Best practice protection measures	YES
	Habitat degradation, biodiversity losses; Damage or destruction of breeding sites for fish and benthic species; Reduction of breeding success in the vicinity of the project; Reduction of food resources for fauna species.	NO	NO	NO	YES	Negative	Temporary	Moderate	Possible	Cumulative	Medium	Best practice protection measures	YES
	Pipeline construction interferes with ecosystem in the area of stream crossings. Danger of cutting trees and bushes along streams including connected fauna and habitats.	NO	YES	NO	NO	Negative	Temporary	Moderate	Possible	Direct	Medium	Alignment Optimisation	NO
Traffic and Transport	Construction sites activities may locally cause traffic disturbance, excessive emissions and noise.	NO	YES	NO	NO	Negative	Temporary	Moderate	Possible	Cumulative	Medium	Traffic management measures	NO
	Construction sites activities may locally cause traffic disturbance, excessive emissions and noise	NO	NO	NO	YES	Negative	Temporary	Minor	Possible	Cumulative	Low	Traffic management measures	NO
	Traffic congestion and damage to infrastructure.	NO	YES	NO	NO	Negative	Temporary	Moderate	Likely	Cumulative	High	Develop a Traffic management plan	NO
	Traffic congestion and damage to infrastructure.	NO	NO	NO	YES	Negative	Temporary	Minor	Possible	Cumulative	Low	Develop a Traffic management plan	NO
	Traffic congestion might lead to increased number of accidents.	NO	YES	NO	NO	Negative	Temporary	Minor	Possible	Cumulative	Low	implementation of road traffic safety measures	NO
	Traffic congestion might lead to increased number of accidents.	NO	NO	NO	YES	Negative	Temporary	Insignificant	Possible	Cumulative	Insignificant	implementation of road traffic safety measures	NO
Cultural Heritage and Archaeology	Low traffic intensity will have a low impact on road network infrastructure, traffic load, road safety noise and dust. There will be road traffic only on special occasions for O&M purposes of the pipelines.	NO	NO	YES	NO	Negative	Permanent	Insignificant	Likely	Cumulative	Low	Implement measures proposed by the Traffic management plan	NO
	Ground excavation (trial pits and boreholes) may destroy existing historical structures in the underground.	YES	NO	NO	NO	Negative	Permanent	Moderate	Unlikely	Direct	Low	Pre-Construction Investigation and archaeological monitoring	NO
	Ground excavation (pit storage) may destroy existing historical structures in the underground.	NO	YES	NO	NO	Negative	Permanent	Moderate	Possible	Direct	Medium	Pre-Construction Investigation and archaeological monitoring	YES

Environmental Topic	Impact	Phases				Impact Assessment							
		Pre-Construction	Construction	Operation	Decommissioning	Nature	Duration	Severity	Likelihood	Effect	Impact Significance	Mitigation	Residual Impact
Cultural Heritage and Archaeology	Graves will be enclosed by project site, could be subject or harmed through works.	NO	YES	NO	NO	Negative	Temporary	Moderate	Possible	Indirect	Medium	Site protection of graves	YES
	Graves will be enclosed by project site, could be subject or harmed through works.	NO	NO	YES	NO	Negative	Permanent	Moderate	Possible	Indirect	Medium	Site protection of graves	NO
	Graves will be enclosed by project site, could be subject or harmed through works.	NO	NO	NO	YES	Negative	Temporary	Moderate	Possible	Indirect	Medium	Site protection of graves	YES
	Noise, vibration and dust might cause nuisance and may lead to impairment of cultural assets, pollution, damage	NO	YES	NO	NO	Negative	Temporary	Moderate	Unlikely	Direct	Low	Information, Preservation of evidence, passive protections, buffer zones with restrictions	YES
	Noise, vibration and dust might cause nuisance and may lead to impairment of cultural assets, pollution, damage	NO	NO	YES	NO	Negative	Permanent	Moderate	Unlikely	Direct	Low	Information, Preservation of evidence, passive protections, buffer zones with restrictions	NO
	Noise, vibration and dust might cause nuisance and may lead to impairment of cultural assets, pollution, damage	NO	NO	NO	YES	Negative	Temporary	Moderate	Unlikely	Direct	Low	Information, Preservation of evidence, passive protections, buffer zones with restrictions	YES
Landscape and Visual Impact	Construction works will change the visual of the landscape. Visual context of neighbouring properties might change.	NO	YES	NO	NO	Negative	Permanent	Moderate	Likely	Direct	High	Design and landscaping	YES
	The new plant will change the visual of the landscape. Visual context of neighbouring properties might change.	NO	NO	YES	NO	Negative	Permanent	Moderate	Likely	Direct	High	Design and landscaping	YES

**Table 3.3: Summary of Anticipated Social Impacts**

Social Topic	Impact	Phases				Impact Assessment							
		Pre-Construction	Construction	Operation	Decommissioning	Nature	Duration	Severity	Likelihood	Effect	Impact Significance	Mitigation	Residual Impact
Community Health and Safety	<b>Community health and safety impacts</b> as a result of pre-construction activities (e.g. land clearing, transportation of materials, demolition of existing structures, de-vegetation, etc.): PAP's exposure to health and safety risks including air pollution, dust, noise, vibration, traffic hazards, improper waste management and changes in water quality.	YES	NO	NO	NO	NEGATIVE	SHORT	Moderate	possible	cumulative	Medium	Available	YES
	<b>Impacts on community health and safety as a result of construction activities:</b> PAP's exposure to health and safety risks including air pollution, dust, noise, vibration, traffic hazards, improper waste management and changes in water quality which can lead to physical injury, illnesses, or in very rare circumstances, death.	NO	YES	NO	NO	NEGATIVE	SHORT	Significant	possible	cumulative	High	Available	YES
	<b>Impacts on community health due to reduced air pollution:</b> It is estimated that the project will contribute to an annual reduction of 40.167 tons of CO2 emissions, which will directly translate into immediate health benefits for local communities (particularly for Pristina city residents).	NO	NO	YES	NO	POSITIVE	LONG	Significant	likely	cumulative	Positive Very High	Available	n.a.
	<b>Impact in case of dam failure / dam collapse</b> and flooding of roads and houses along Gazimestan creek until Sitnice river, potential risk of life or severe injuries due to water amount and water temperature	NO	NO	YES	NO	NEGATIVE	LONG						
	<b>Impacts on community health and safety as a result of decommissioning, demolition, and land rehabilitation activities:</b> Direct impacts include those resulting from decommissioning activities (e.g. dust, noise, waste, exposure to risks of falling due to uncovered wells or other structures etc.) as well as incomplete land rehabilitation activities. Indirect impacts include increased air pollution due to Termokos' reliance on inefficient heating sources (e.g. coal) as a result of solar plant shutdown.	NO	NO	NO	YES	NEGATIVE	SHORT	Significant	unlikely	cumulative	Medium	Available	NO
Community Relations	<b>Impacts on community relations and security:</b> Complaints with regards to disturbances caused by construction activities (e.g. due to dust, noise, vibrations, etc.) might lead to tensions between local communities and construction workers and gender-based violence.	NO	YES	NO	NO	NEGATIVE	SHORT	Significant	unlikely	cumulative	Medium	Available	YES
	<b>Impacts on community perceptions around the project:</b> PAPs at risk of being impacted by land acquisition and/or restriction on land use as well as New Hade residents, who have already experience resettlement (as a result of a previously implemented WB project), might have negative perceptions around the project's construction activities particularly due to fears and concerns with regards to land acquisition and potential disturbances and health impacts that may be caused by air pollution, dust, waste, etc. resulting from solar plant construction activities.	NO	YES	NO	NO	NEGATIVE	SHORT	Moderate	unlikely	cumulative	Low	Available	YES
District heating services	<b>Expansion of district heating services:</b> 18,000 new costumers (or 4,000 households/apartments) will be connected to the existing DH network and profit from a more economic and reliable heat supply.	NO	NO	YES	NO	POSITIVE	LONG	Significant	likely	cumulative	Positive Very High	Available	n.a.
	<b>Loss of essential district heating services previously provided by the solar plant:</b> Unless a new solar plant is envisioned to be built and utilized by Termokos, the final shutdown of the S4K solar plant will cause loss of district heating services previously provided by the facility to 18,000 costumers.	NO	NO	NO	YES	NEGATIVE	LONG	Significant	likely	cumulative	Very high	Available	YES

Social Topic	Impact	Phases				Impact Assessment							
		Pre-Construction	Construction	Operation	Decommissioning	Nature	Duration	Severity	Likelihood	Effect	Impact Significance	Mitigation	Residual Impact
Employment	<b>Impacts on employment and business generation:</b> Construction activities can generate both direct employment (for construction and other types of workers) and business opportunities for local communities which are expected to increase local people's income and have a substantial (short-term) positive effect on welfare and poverty reduction.	NO	YES	NO	NO	POSITIVE	MID	Moderate	likely	cumulative	Positive High	Available	n.a.
	<b>Impacts on employment opportunities as a result of operational activities:</b> The operation of the solar plant will generate employment of local people (operational and maintenance staff). Direct employment is expected to increase local people's income and have a substantial positive effect on welfare and poverty reduction.	NO	NO	YES	NO	POSITIVE	LONG	Moderate	likely	cumulative	Positive High	Available	n.a.
	<b>Impacts on employment and economic activity can be both positive and negative:</b> Negative - The shutdown and decommissioning of the solar plant will inevitably lead to reduced numbers of personnel employed as well as reduced economic activity in the local and wider community. Positive - Additional short-term employees employed solely for decommissioning purposes.	NO	NO	NO	YES	NEGATIVE	LONG	Moderate	likely	cumulative	High	Available	n.a.
	<b>Impacts on employment and economic activity can be both positive and negative:</b> Negative - The shutdown and decommissioning of the solar plant will inevitably lead to reduced numbers of personnel employed as well as reduced economic activity in the local and wider community. Positive - Additional short-term employees employed solely for decommissioning purposes.	NO	NO	NO	YES	POSITIVE	LONG	Moderate	likely	cumulative	Positive High	Available	n.a.
Land Acquisition	<b>Land Acquisition and restriction on land use as a result of pre-construction (and construction) activities:</b> leading to loss of land, loss of access to land, loss of crops, (temporary) loss of and damage to community/public infrastructure, loss of agricultural income or other businesses, as well as impairment of access to economic activities.	YES	NO	NO	NO	NEGATIVE	SHORT	Significant	likely	cumulative	Very high	Available	NO
Land rehabilitation	<b>Partial or incomplete rehabilitation of the land:</b> If decommissioning activities are not fully implemented, the project may fail to return the used land, as close as reasonably practical, to its pre-disturbance land use. Direct impacts include the land being left in an unusable or 'damaged' condition, unsafe to be used by people or animals (e.g. for grazing). Indirect impacts might include e.g. the land remaining in that state for long periods of time which not only impacts its future uses but may lead to negative community perceptions and drive migration.	NO	NO	NO	YES	NEGATIVE	LONG	Significant	unlikely	cumulative	Medium	Available	YES
Livelihoods	<b>Impacts on incomes or livelihoods:</b> The construction of transmission pipelines will result directly impact the livelihoods of PAPs as a result of land acquisition or prohibitions on the use of land for certain agricultural, residential, commercial, and other activities. This may lead to income losses (as a result of loss of land, loss of access to land, loss of crops), loss of agricultural income or other businesses, as well as impairment of access to economic activities.	NO	YES	NO	NO	NEGATIVE	LONG	Moderate	likely	cumulative	High	Available	YES
Occupational Health and Safety	<b>Impacts on occupational health and safety:</b> Construction workers might be exposed to accidents during construction activities (e.g. falling, slipping, machinery accidents, electrical hazards, etc.) which may cause minor to serious injuries, illnesses, and even fatalities/death.	NO	YES	NO	NO	NEGATIVE	SHORT	Significant	possible	cumulative	High	Available	YES

Social Topic	Impact	Phases				Impact Assessment							
		Pre-Construction	Construction	Operation	Decommissioning	Nature	Duration	Severity	Likelihood	Effect	Impact Significance	Mitigation	Residual Impact
	<b>Impacts on occupational health and safety during solar plant operation:</b> Hazards might include e.g. lifting heavy and awkward flat plate collectors (lifting hazards), handling collectors that are hot from sitting in the sun (burn hazards), exposure to solar radiation, burns caused by the application of fluid to a hot solar system (it can flash the liquid to steam), etc.	NO	NO	YES	NO	NEGATIVE	LONG	Significant	possible	cumulative	High	Available	YES
	<b>Impacts on occupational health and safety as a result of decommissioning works:</b> Injuries and hazards resulting from decommissioning activities/accidents may cause minor to serious injuries, illnesses, and even fatalities/death. Examples include exposure to solar radiation, hazardous substances or residues, heavy lifting of solar panels, etc.	NO	NO	NO	YES	NEGATIVE	SHORT	Significant	possible	cumulative	High	Available	YES
Stakeholder Engagement	<b>Exclusion of certain (vulnerable) groups from stakeholder engagement and information disclosure processes:</b> exclusion based on gender, disability, literacy levels, and other forms of vulnerability.	YES	NO	NO	NO	NEGATIVE	MID	Minor	possible	cumulative	Low	Available	YES

#### **4. SIGNIFICANT IMPACTS OR OPPORTUNITIES**

##### **4.1.1. Beneficial Impacts**

###### Avoidance of air emission

The Project's impact on air quality is deemed a crucial one, as the primary purpose of the Project's solar-thermal facility is to create heat energy from renewable sources (heat from solar radiation). Therefore, the facility's operation would substitute a part of caloric heat production; thus, air pollution fuelled by lignite, wood or heavy crude oil. Therefore, the facility's operation would allow for emission-free energy production and contribute to the national emission reduction goal for energy production.

###### Climate impact

Through expansion of District heating and the use of solar thermal plants and renewable energies for heat and hot water production, private households and public and commercial facilities are relieved from individual heating systems, traditionally operated with solid fuels, such as natural wood, wooden and paper waste, as well as Lignite or Coal. Emissions of particulate matter and air pollutants (CO, NO<sub>x</sub>, SO<sub>2</sub>), one significant factor of the known severe air pollution in Prishtina, will reduce carbon dioxide (CO<sub>2</sub>) emissions. Thus, a major contribution is made to improving urban areas' international and national sustainability goals in fighting climate change, increasing energy efficiency and protecting natural resources.

###### Sustainable energy production and sector coupling

The Project enables TERMOKOS to supply at least an additional 65 GWh/a of heat energy to the DH network of the city of Prishtina on a sustainable solar thermal basis. The CHP driven district heating system can be operated more efficiently and on a permanently higher output level. Moreover, in Prishtina the existing district heating network can be expanded, and new customers will be connected to the network and profit from a more economical and reliable heat supply. Integrating large heat storage into the whole district heating system can create additional benefits also for the electricity supply system. This effect is known in the energy business as Sector Coupling and concerns in most cases the interaction between the heat and the electricity market.

###### Energy cost for private households

Households in Prishtina usually spend a high percentage of their income on residential heating. This affects their capacity to cover other expenses and may result in times of increased electricity prices in an increased inability to afford proper indoor thermal comfort. Consequently, this may affect household members' physical and mental health and well-being. By using renewable energies such as district heating with a solar thermal component, it is expected that energy expenses might at least stagnate, or even can be reduced.

###### Innovative light-tower Project for the region

Being the first of its kind in Kosovo, this Project can be replicated in other municipalities that aim to develop district heating projects. Considering that also in other cities of Kosovo, new urban developments are bringing the densification of metropolitan areas with new multi-storey apartments. Given that urban development plans are in permanent



dynamics due to demographic movements, a master plan on future district heating in main Kosovo cities could be considered.

#### Social and Economic Issues

The Project will likely lead to increased employment and economic activity, resulting in multiple benefits for the local population. Employment of skilled and unskilled workers is anticipated during all project stages, which will produce enhanced business opportunities and activities at the local level. Anticipated impacts will include increased demand for services, such as accommodation, food, shops, rental vehicles, material supply, security, etc. The increase in employment and economic activities will lead to increased income in the long term and better living conditions. Adequate and early liaising with the impacted local and host communities in the vicinity of the project zone will likely enable enhancing the social dialogue and aligning efforts to increase the social and economic benefits of this Project.

#### **4.1.2. Adverse Impacts**

##### Soil

The Project will involve a lot of earth displacement, such as the removal of soil layers due to excavations and the arrangement of facilities for the operational infrastructure of the solar panels and pipelines. Also, a part of the displaced soil will have to be partially transported to the landfill, and another part will have to be mixed with stabilizing materials and restored to the territory of the project site. During decommissioning, the soil will readjust to its original level more or less. The ground cannot be completely restored to its previous original state.

Full mitigation may not be possible concerning soil.

##### Water and Wastewater

Suppose accidents occur due to careless activities related to using hazardous effluents related to construction and O&M activities. In that case, they can potentially flow uncontrolled and penetrate, entering the soil, groundwater and superficial. Accidental spills of vehicle fuels and oils during the activities foreseen in the project cycle also have consequences for habitats, biodiversity and, more broadly, for the environment if the foreseen measures are not taken.

Hazardous effluents and oil spills may not be completely remedied.

##### Water Supply

For the initial filling of the water storage pit (410 000m<sup>3</sup>) a permanent volume flow of 100m<sup>3</sup>/h from the local water supply network would be required for the complete filling within 6 to 7 months during the construction phase. Potable water fed into local water networks of Obiliq and Shkabaj is stemming from Lake Gazivoda in North Kosovo. Climate change will locally result in hotter summers and reduced precipitation. Thus, the temporary availability of freshwater for the local water network will become a subject of prioritization for different purposes. Water shortage for private households would entail a direct negative impact. Therefore, filling of storage pit must be ranked behind household supply and will therefore face delays.

##### Stormwater Management and Erosion Control

If the Pit would collapse and the hot water would rise and overturn the catchment basin included, this would bring severe consequences for the aquatic biodiversity and possibly

dangerous implications for the population and activities along the sudden water flow of the Pit. Roads and houses can be damaged, and this can be not only with economic damage to public and private infrastructure but also with consequences for people with loss of life, property values and income.

Area destroyed and habitat losses are expected to be temporary.

#### Solid Waste and Hazardous Materials Management and Disposal

Similar consequences as those referred under water and wastewater can be considered mainly under the effects of hazardous materials accidents due to incorrect management and disposal mitigation measures. Illegal waste deposits and hazardous materials can affect water, soil and habitats/biodiversity, but even further to the local population.

Solid waste and hazardous materials may not be remedied entirely in case of improper management and disposal measures are not in place during construction and O&M.

#### Ecology and Biodiversity

The degradation of the natural habitat due to the changes that will occur as a result of soil displacement, excavations and the installation of project facilities and pipelines will have permanent consequences, especially on the project site. Biodiversity losses following habitat degradation processes may result from disturbances, especially during construction. As the construction and decommissioning phase will be transient, and probably shorter than a half year, no impact on biodiversity can be expected. All activities of construction and decommissioning will have a no clear impact to the ecosystem, consisting of the complex of underground, flora and fauna, waters and air.

In the sense of cumulative impact, however, species might be unintended and obviously harmed or dislocated, whereas other species might be attracted or imported with related transports. No significant impact to ecology and biodiversity can therefore be recognized from the list of activities. Still, they are expected to have temporary effects and return after some time since the Project will not bring consequences during the operation phases.

In the event of disasters during the Projects operation or construction phase related to damage to the storage pit or the flooding of parts of the water basin, the risk of accidental contamination from hazardous waste or oil spills. The reduction of breeding success in the vicinity of the Project due to the occupation of the territory by a part of this Project's facilities may be another temporary consequence. The reduction of food resources for fauna species may result from disturbances during construction activities. As a consequence, some species may migrate or decrease in number if they coincide with their reproduction phase.

Full mitigation may not be possible concerning biodiversity.

#### Livelihood

At least two farmers, cultivating agricultural plots as informal land users, will be economically displaced through the project implementation. Their livelihoods are preliminary assessed to be at risk, as farming is their households source main income. A Land Acquisition and Livelihood Restoration Framework (incl. preliminary plan) has been drawn up, that foresees to compensate farmers with substitute land and further affected households (in the Pipeline corridors) as they are found eligible resp. entitled for compensation. An number of livelihood restoration measures shall furthermore improve their livelihood additionally to the compensation.

### Transport and Traffic

The construction phase of the project will especially require the haulage of soil and similar solid materials from and to the project site and the Pipeline corridors. This impacts the road network, the traffic load of these, the road traffic safety as well as causes nuisances to residents and road users in terms of noise, vibration and dust. Minor to moderate impacts were assessed for the project site and for the alignments of the Pipelines A+B, that must be mitigated by a Traffic management plan and an efficient construction logistic, as well as the reuse of excavated material at project site.

### Landscape and Visual Impact

The new plant will change the appearance of the landscape. Although the current land, where the panel system, pit storage and other technical facilities will be placed, has undergone anthropogenic changes in time from the interventions carried out, the placement of the new plant will change the landscape aspect and landscape further in a permanent way. The visual context of the neighbouring properties may change since the earlier plan for the urban development of Hade e Re cannot be implemented, and the part designated for the solar Project will be industrialized according to the feasibility study.

Changing the landscape cannot be avoided entirely.

### Cultural Heritage

The project site is located in direct and mediate vicinity of two places of cultural heritage, the Bajraktari Tomb site and the Gazimestan Monument. Both might be harmed through nuisances of the construction phase, e.g. its dust, noise and vibrations, for which effective pre-cautions to protect these places must be implemented as mitigation. Moreover, a Chance-find procedure must be followed, in case archaeological relics are found during earthworks. Modern graves, as existing on project site, are subject of further negotiation with the Municipality to be relocated, if desired by community owners. However, construction and operation phase must not harm the integrity of these singular commemorative places and project design must strictly avoid the existing graveyard, guarantee a free access path.

## **4.2. CONCLUSION**

Through the expansion of Pristina district heating capacities via the use of solar thermal plants while using renewable energies for heat and hot water production, considerable benefits will be generated for many households as well as public and commercial facilities.

Moreover, those are relieved from individual heating systems, traditionally operated with solid fuels, such as natural wood, wooden waste, paper and household waste, and lignite or coal, resulting in cumulating the strong air pollution in Prishtina and the Kosovo, that is originated in the dust and gaseous emissions from the Power plants and industries nearby.

The Project's adverse potential environmental and social impacts have been identified in this report while proposing adequate mitigation of adverse impacts throughout the whole life cycle of the project implementation.

Although some residual impacts may persist, no human hardships or significant environmental threats are anticipated, and the positive impacts prevail for environmental and society. Therefore, it is assumed that the overall goal of an environmentally sound, sustainable, and cost-effective energy production through the Solar4Kosovo / Solar District Heating project can be achieved.

**5. RESIDUAL RISKS/ISSUES**

After implementing management and mitigation measures, the Project's residual environmental and social impacts are generally of low significance. This is true for all environmental impacts assessed. The relevant exceptions above “Low significance” are presented in the Tables below.

Table 5.1 and Table 5.2 below provide overview of anticipated impacts identified throughout the ESIA, which may result in a residual impact.

**Table 5.1: Overview of potential residual Environmental Impacts**

Environmental Topic	Impact	Phase				Impact Assessment		
		Pre-Construction	Construction	Operation	Decommissioning	Impact Significance	Mitigation	Size of Residual Impact
<b>Geology, Soil and Groundwater</b>	Hazardous effluents associated with construction and O&M activities to enter soil, groundwater and surface water. Accidental spills of vehicle fuels and oils.	NO	YES	YES	NO	Medium	Spill Management and EHS measures	Minor
<b>Water and Wastewater</b>	Crossing of pipelines trough or under surface waterbodies, may disturb of the physical structure of the waterbody its water quality its aquatic life and the local visual landscape.	NO	YES	NO	NO	Very high	Innovative minimal invasive pipe laying method.	Minor
	Silt and clay particles can run to near waterbodies, impacting water quality in the immediate vicinity of the construction works.	NO	YES	NO	NO	Medium	Pollution control	Minor
<b>Air Quality</b>	Emissions from vehicles and machinery / equipment	NO	YES	NO	NO	High	Reduce Emissions where possible	Minor
		NO	NO	NO	YES	Medium		Minor
<b>Noise and vibration</b>	Noise from construction and decommissioning traffic.	NO	YES	NO	NO	High	Noise abatement measures	Minor
		NO	NO	NO	YES	Medium		Minor
<b>Stormwater Management and Erosion Control</b>	The Pit would collapse, and hot water would surge and inundate the watershed incl. Roads and houses.	NO	NO	YES	NO	Medium	Dam Safety Control	Minor
<b>Ecology and Biodiversity</b>	Habitat degradation, biodiversity losses; Damage or destruction of breeding sites for fish and benthic species; Reduction of breeding success in the vicinity of the project; Reduction of food resources for fauna species.	NO	YES	NO	YES	Medium	Best practice protection measures	Minor
<b>Cultural Heritage and Archaeology</b>	Ground excavation (pit storage) may destroy existing historical structures in the underground.	NO	YES	NO	NO	Medium	Pre-Construction Investigation and archaeological monitoring	Minor
	Graves will be enclosed by project site, could be subject or harmed through works.	NO	YES	NO	YES	Medium	Site protection of graves	Minor
<b>Landscape and Visual Impact</b>	Construction works will change the visual of the landscape. Visual context of neighbouring properties might change.	NO	YES	NO	NO	High	Design and landscaping	Minor
	The new plant will change the visual of the landscape. Visual context of neighbouring properties might change.	NO	NO	YES	NO	High	Design and landscaping	Minor

All residual environmental impacts are deemed only of minor size.

**Table 5.2: Overview of potential significant residual social impacts**

Social Topic	Impact	Phase				Impact Assessment		
		Pre-Construction	Construction	Operation	Decommissioning	Severity	Impact Significance	Residual Impact
Community Health and Safety	<b>Impacts on community health and safety</b> as a result of <b>construction activities</b> : PAPS' exposure to health and safety risks including air pollution, dust, noise, vibration, traffic hazards, improper waste management and changes in water quality which can lead to physical injury, illnesses, or in very rare circumstances, death.	NO	YES	NO	NO	Significant	High	Minor
	<b>Impact in case of dam failure / dam collapse</b> and flooding of roads and houses along Gazimestan creek until Sitnice river, potential risk of life or severe injuries due to water amount and water temperature	NO	NO	YES	NO	Significant	Medium	Minor
	<b>Impacts on community health and safety as a result of decommissioning, demolition, and land rehabilitation activities</b> : Direct impacts include those resulting from decommissioning activities (e.g. dust, noise, waste, exposure to risks of falling due to uncovered wells or other structures etc.) as well as incomplete land rehabilitation activities. Indirect impacts include increased air pollution due to Termokos' reliance on inefficient heating sources (e.g. coal) as a result of solar plant shutdown.	NO	NO	NO	YES	Significant	Medium	Minor
District heating services	<b>Loss of essential district heating services previously provided by the solar plant</b> : Unless a new solar plant is envisioned to be built and utilized by Termokos, the final shutdown of the S4K solar plant will cause loss of district heating services previously provided by the facility to 18,000 costumers.	NO	NO	NO	YES	Significant	Very high	Key
Employment	<b>Impacts on employment and economic activity</b> : Negative - The shutdown and decommissioning of the solar plant will inevitably lead to reduced numbers of personnel employed as well as reduced economic activity in the local and wider community.	NO	NO	NO	YES	Moderate	Negative High	Minor
Land Acquisition	<b>Land Acquisition and restriction on land use as a result of pre-construction (and construction) activities</b> : leading to loss of land, loss of access to land, loss of crops, (temporary) loss of and damage to community/public infrastructure, loss of agricultural income or other businesses, as well as impairment of access to economic activities.	YES	NO	NO	NO	Significant	Very high	Minor
Land rehabilitation	<b>Partial or incomplete rehabilitation of the land</b> : If decommissioning activities are not fully implemented, the project may fail to return the used land, as close as reasonably practical, to its pre-disturbance land use. Direct impacts include the land being left in an unusable or 'damaged' condition, unsafe to be used by people or animals (e.g. for grazing). Indirect impacts might include e.g. the land remaining in that state for long periods of time which not only impacts its future uses but may lead to negative community perceptions and drive migration.	NO	NO	NO	YES	Significant	Medium	Key
Livelihoods	<b>Impacts on incomes or livelihoods</b> : The construction of transmission pipelines will result directly impact the livelihoods of PAPS as a result of land acquisition or prohibitions on the use of land for certain agricultural, residential, commercial, and other activities. This may lead to income losses (as a result of loss of land, loss of access to land, loss of crops), loss of agricultural income or other businesses, as well as impairment of access to economic activities.	NO	YES	NO	NO	Moderate	High	Minor

Two residual social impacts are of significant size (key) after mitigation.

## 6. SUMMARY OF KEY ASPECTS OF THE ESMP

The Environmental and Social Management Plan (ESMP) provides a consolidated summary of all the Environmental, Social, Health and Safety (ESHS) commitments.

Being a management plan of the project proponent, represented by the PIU, it is relevant for the four phases of design/pre-construction, construction, operation and a potential decommissioning of the intended project.

Its spatial validity is mainly focussed on activities related to the project site in Hade-e-Re and the associated facilities, i.e. the corridors of Pipelines A and B in the Municipalities of Obiliq and of Prishtina

The ESMP comprises for each phase a list of mitigation and monitoring activities, clearly related to the 12 thematic attributes of the ESIA baseline (plus the Livelihood compensation topic) and thus focus on environmental (such as air emissions, biodiversity and environmental contamination) and social aspects (such as the protection of human rights, communication with local stakeholders, safety of workers and communities). These activities were defined in accordance with the Legal and Regulatory framework applicable for the intended project, considering both, national laws and bylaws as well as international regulations (primarily the World Bank's Environmental and Social Standards), as been required for co-funding from international donors and banks.

In a nutshell the ESMP has compiled approx. 60 particular activities for the pre-construction phase, 60 required activities for the construction phase that are also valid for the decommissioning phase in most cases, as well as approx. 40 activities to be complied with during the operation phase.

The listed activities are twofold. At first, they require responsible actors to elaborate detailed management plans, for Construction Management; Site installation, Occupational Health & Safety, Emergency Response, Community Health & Safety, Traffic management, the management of Waste and Hazardous Material, Biodiversity and Environmental Management as well as related trainings on all levels. Moreover, they recommend rather specifically the timely coordination with relevant actors (infrastructure managers, administration, stakeholder).

The responsible actors foreseen to safeguard the implementation of the ESMP are primarily located at the Project implementation unit (being a unit inside the Project executing agency i.e. TERMOKOS Sh.A.) but includes all its contracted expert companies related to Procurement/Tendering of services, Design and Permit obtaining, Stakeholder engagement, construction works, site supervision of works, supply of systems, operation of system and if required deconstruction in a decommissioning phase.

The implementation of this ESMP requires a sufficient number of staff, knowledgeable not only in its branch, but also have an in-depth understanding of the ESHS guidelines and standards of the financing bodies, i.e. international financing institutions and donors.

The ESIA consultant have proposed at least three community enhancement measures

- Consideration of employment chances for plant maintenance, e.g. cleaning of panels, grazing the panel areas with sheep, guarding of fences
- Consider and coordinate with Municipality of Obiliq and international donors (WBIF) the additional design of a small District heating grid for future buildings of Hade-e-Re settlement, utilising the Solar thermal plant to be constructed.
- Consider and coordinate with Kosovo Environmental Protection Agency KEPA how environmental quality of Gazimestan Natural protection zone can be increased, e.g. through cleaning of several existing wild-dumps, directly adjacent to project footprint as voluntary good-will action.

## **7. THE MANAGEMENT OF THE ENVIRONMENTAL AND SOCIAL ASPECTS OF THE PROJECT INCLUDING MONITORING ACTIVITIES**

This chapter aims to describe the nature of the project's systematic approach to manage the environmental and social aspects of the project including monitoring activities.

It is key for the Environmental and Social Management System (ESMS) to incorporate the following seven elements:

1. **Project-specific environmental and social framework**, which establishes the environmental and social objectives and principles that guide a project to achieve sound performance. It also summarizes the applicable socio-environmental processes, as well as the structure and operation of the project's ESMS. This document defines the "roadmap" and, as such, is complementary to and interrelated with the other components of the ESMS. The framework will indicate who, within the borrower's organization, will be responsible for its execution. The borrower will communicate the framework at all relevant levels of the project.
2. **Identification of risks and impacts** according to the type, size and location of the project. All relevant environmental and social risks and impacts of the project, which may be direct, indirect or cumulative, will be considered in the process. The scope of this process will be determined by the application of the mitigation hierarchy, in accordance with good international practices in the corresponding sector. On the other hand, the dynamic nature of developing a project must be recognized and integrated into the process of identifying environmental and social risks and impacts, which requires adequate evaluation tools to identify risks and impacts, such as analysis of alternatives, background studies, environmental and social assessments, audits, surveys, specialized studies and consultations with technical specialists.
3. **Management programs** that include mitigation measures to address the environmental and social risks and impacts that have been identified in the project. Programs may consist of a documented combination of operating procedures, practices, plans, and existing legal agreements between the borrower and third parties, which address mitigation measures related to specific impacts. Environmental and social action plans will be established in these programs to define the desired results and actions, which will be proportional to the project's risks and impacts and will take into consideration the results of the stakeholder engagement process.
4. **Organizational capacity and competence** through a structure that defines the functions, responsibilities and powers for the application of the ESMS. This element

includes human and financial resources, managerial and administrative commitment, and borrower personnel responsible for project implementation.

5. **Emergency preparedness and response** to adequately address accidental and emergency situations related to the project that may harm people or the environment. It is important to ensure a participatory process with local government agencies in their preparations to respond effectively to emergency situations.
6. **Stakeholder engagement** through an analysis of the people affected by the project, as well as those parties that are not directly affected but that have an interest in the project, such as national and local authorities, neighbouring projects or non-governmental organizations. This element helps define the consultation processes, grievance mechanisms and information disclosure strategies, among others. Stakeholder engagement is a continuous and iterative process whereby the borrower or project facilitates two-way interaction with said stakeholders.
7. **Monitoring and review** according to the project's environmental and social risks and impacts and its compliance requirements. This element is the main way in which the borrower can control and evaluate the progress in the project's implementation and management programs, including the adaptation of the ESMS to real conditions during the execution stage.

## 8. **SUMMARY OF STAKEHOLDER ENGAGEMENT, CONSULTATIONS AND GRIEVANCE MECHANISM**

This chapter summarizes the Stakeholder Engagement and further activities performed during the ESIA conduct during 2022. It also provides information about the available Grievance mechanism at PIU and the contact details for further information. All these activities are basing on a dedicated document, the so-called **Stakeholder Engagement Plan**, which is prepared and regular updated, and available at the Project implementation unit at TERMOKOS.

### 8.1. **GENERAL NOTES**

A public meeting was held with the interested residents in the affected areas and the general public led by NP TERMOKOS Sh.A. as part of the development of the Environmental and Social Impact Assessment (ESIA on July 21<sup>st</sup>, 2022, between 18:00 – 20.00 at the "Dituria" school in the village of Shkabaj and on July 22<sup>nd</sup>, between 18:00-20.00 at Meto Bajraktari School in Prishtina.

The following topics were presented and discussed according to the invitation and agenda shared with participants:

- Information on the Solar-Thermal Project (Solar4Kosovo), impacted areas, benefits in short and long terms for the residents, key characteristics of the project (while feasibility study report was still under finalization)- Mr. Naim Bytiçi, Termokos
- Environmental and Social Impact Assessment process and initial considerations – Mr. Andrian Vaso, and Ms. Lumnije Gashi, (CES)
- Social issues, Livelihood Restoration Plan and Stakeholder Engagement and communication Plan – Ms. Eldisa Zhebo and Mr. and Vigan Behluli (CES)
- Questions, comments and information from the public



## 8.2. GRIEVANCE MECHANISM AND POINT OF INFORMATION

**In the above-mentioned meeting, Ms. Eldisa Zhebo (CES) informed about the wider public and Stakeholder Information and Engagement Plan (SEP).**

The objective is to improve and facilitate project-related decision-making and create opportunities for the active involvement of all interested parties in a timely and meaningful manner, and to provide opportunities for all interested parties to express their opinions and concerns that may influence project decisions.

She noted that this meeting is conducted for the planned implementation of stakeholder engagement activities to inform the ESIA process for the Solar4Kosovo project, at the time of ESIA preparation. TERMOKOS aims to provide all relevant information and the necessary documents and information as soon as they are prepared to the public and to all interested and affected parties such as:

- Non-technical summary of the ESIA;
- Stakeholder Engagement Plan (SEP) including Grievance Mechanism;
- Environmental and Social Impact Assessment (draft and final);
- Environmental and Social Management Plan (ESMP).

These documents and other information will be available in the following ways:

- Paper copies of documents will be made available for viewing during working hours at the premises of TERMOKO Sh.A. (181, 28 November St., Prishtina)
- On the TERMOKOS website (<https://TERMOKOS.org>).
- Official website of the TERMOKOS project <https://TERMOKOS.org/category/solar-4-kosovo/>
- Questions by phone, mail, fax or e-mail to the Public Information Office at TERMOKOS [info@TERMOKOS.org](mailto:info@TERMOKOS.org); and to dedicated email [solar4kosova@TERMOKOS.org](mailto:solar4kosova@TERMOKOS.org)
- Direct website for public inquiries - <https://TERMOKOS.org/kontakti/>

For all public comments, complaints or questions, TERMOKOS has made available the following means:

- By completing the request form, according to the form shared with participants (Figure 8.1)
- By submitting or sending by post a formal request to the offices of NP Termokos Sh.A. (Figure 8.1) or
- Email with the subject "Solar4Kosovo" and attaching the data according to the form explained
- Contacting TERMOKOS by phone
- By completing the form with the subject "Solar4Kosovo" through the link: <https://termokos.org/kontakti/>

**Emri i plotë (opsional):** \_\_\_\_

- Dua të parashtrij pyetjen/bregën në mënyrë anonime.
- Kërkoj që mos të shpaloset identiteti pa pëlqimin tim.

**Detalet kontaktuese**

- Ju lutem shënoni si dëshironi të ju kontaktojmë (postë, telefon, e-mail).
- Nëpërmjet postës: Ju lutem shënoni adresën: \_\_\_\_
- Nëpërmjet telefonit: \_\_\_\_
- Përmes E-mail: \_\_\_\_

**Gjuha e preferuar e komunikimit**

- Shqip  Serbisht  Tjetër: \_\_\_\_

- Përshkrimi i informatës së kërkuar apo shqetësimit**
- Çfarë konsideroni se duhet të ndodh / ndryshoje?**

**Nënshkrimi: (Nëse me shkrim)**  
**Data:**

Figure 8.1 Form for submitting inquires / grievances

The screenshot shows a web browser window with the URL 'termokos.org/kontakt/'. The page content is as follows:

## Kontakti

---

**Adresa**

N.P. Termokos Sh.A., në Prishtinë  
Rr. 28 Nentori nr.181, Prishtinë

---

**Zyra për marrëdhënie me publikun**

Aferdita Uka- Fejzullahu – zëdhënëse  
E-mail:  
[aferdita.uka@termokos.org](mailto:aferdita.uka@termokos.org)  
[info@termokos.org](mailto:info@termokos.org)

---

**Zyrat kontaktuese të rajoneve**

Dispeqeri kujdestar (për çështje teknike)  
038/543-210  
044/555-680

**Nenstacioni QENDËR**  
Rr. UÇK Qafa A. P.n.  
Përgjegjës Hasim Vitija  
Tel. 044/174-127  
Prej: 07:00 – 15:00

**Nenstacioni DARDANI**  
Rr. Lekë Dukagjini, Objekti 6/3. P.n.  
Inxh.përgjegjës Lavdim Fejza

---

**Na shkruani**

Mesazhi\*

Emri \*

E-mail \*

Subjekti \*

**Dergo >**

Figure 8.2 Contact form on TERMOKOS website



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