



# Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 27-Mar-2018 | Report No: PIDISDSA23802

**BASIC INFORMATION****A. Basic Project Data**

Country Turkey	Project ID P162727	Project Name Gas Storage Expansion Project	Parent Project ID (if any)
Region EUROPE AND CENTRAL ASIA	Estimated Appraisal Date 02-Mar-2018	Estimated Board Date 31-May-2018	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) BORU HATLARI ILE PETROL TAŞIMA A.Ş. (BOTAŞ)	Implementing Agency BORU HATLARI ILE PETROL TAŞIMA A.Ş. (BOTAŞ)	

## Proposed Development Objective(s)

The Project Development Objective is to increase the reliability and security of gas supply in Turkey by expanding underground gas storage capacity in the country.

## Components

Tuz Golu Gas Storage Expansion Plant  
Construction Supervision Consultancy  
ESIA and RAP Monitoring Consultancy

**Financing (in USD Million)**

Financing Source	Amount
Asian Infrastructure Investment Bank	600.00
Borrower	735.00
International Bank for Reconstruction and Development	600.00
Islamic Development Bank	350.00
Foreign Private Commercial Sources (unidentified)	450.00
<b>Total Project Cost</b>	<b>2,735.00</b>

## Environmental Assessment Category

A - Full Assessment



Decision

The review did authorize the preparation to continue

Other Decision (as needed)

## B. Introduction and Context

### Country Context

Turkey has achieved commendable economic and social development results since the early 2000s, raising it to the world's 17<sup>th</sup> largest economy and establishing it as a global presence. Macroeconomic stability, broad social and economic reforms, closer economic ties with the European Union (EU), and a transformation of a significant part of the economy away from agriculture into manufacturing and services were core contributors to Turkey's growth. Turkey's Gross National Income (GNI) per capita rose from \$3,115 in 2001 to \$11,000 in 2015; poverty incidence more than halved and extreme poverty fell even more dramatically. Turkey's success on poverty reduction was driven mainly by increased labor incomes and stemmed from growing levels of consumption rather than changes in the distribution: these are all factors that make poverty reduction more sustainable. Turkey's growth for the 2010-2016 period continued to be impressive, averaging 6.7 percent annually, in sharp contrast to many other middle-income countries. Despite being hit by adverse shocks in 2016 linked to the failed coup attempt, the economy has shown remarkable resilience: growth in 2017 is estimated at 6 percent, supported by a substantial fiscal stimulus.

The Government continues to implement its 10<sup>th</sup> Development Plan (2014-2018) for which ownership remains strong and long-standing. The Government is committed to continued structural reforms to ease constraints on productivity, tackle a low female labor force participation rate that hampers sustained growth, and build the skills of its population to reap the benefits of greater global integration. Turkey's macroeconomic and fiscal frameworks remain robust despite political, security and economic challenges, many of which are external. The continued difficult geopolitical environment in the region, stemming from the Syrian crisis amongst other issues, has had a negative impact. Weak growth in the EU – Turkey's largest export market and trading partner – has also impacted exports and investment. In response to these challenges, the Government has executed a successful fiscal stimulus since mid-2016 that has underpinned the strong growth rate in 2017; continued robust growth of 4 percent each year is predicted for the medium-term. Turkey's development foundations remain sound and should bolster its ability to continue to face challenges and carry out needed reforms.

### Sectoral and Institutional Context

Natural gas is the most important fuel in Turkey's energy supply. Turkey's gas consumption, about 52 billion cubic meters (bcm) in 2017, accounted for about one third of Turkey's primary energy supply. Implementing the Government of Turkey's strategic choice to diversify the country's energy mix, Turkey's national gas company BOTAŞ launched the development of a national gas transmission networks followed by natural gas imports in



1987. Less than two decades later, gas had displaced indigenous coal as the most important fuel in power generation. Use of natural gas for power generation was preferred due to its lower investment cost, operational flexibility and environmental advantages. Residential and industrial consumption have increased steadily in line with the expansion of BOTAŞ' natural gas transmission network and the development of gas distribution systems by a large number of private companies across Turkey. Their shares in total consumption reached 31 percent and 29 percent of annual gas consumption in 2017, respectively; with power generation still accounting for the highest share at 40 percent.

Turkey's heavy dependence on energy imports (mostly oil and gas) constitutes a macroeconomic challenge and an energy security risk. By end-2017, energy imports accounted for nearly 60 percent of Turkey's primary energy supply, 14 percent of imports and 80 percent of the current account deficit. The Government's strategy calls for more efficient utilization of natural gas to moderate consumption, diversification of supply sources, and a rapid increase of gas storage capacity. While substitution of gas is feasible in power generation, residential and industrial gas consumers - with few exceptions - have no feasible alternative energy sources and in recent years, gas supply was curtailed to some consumers due to inability to meet demand, resulting in economic and financial losses due to the unserved demand. Almost 90 percent of gas imports are from three countries, namely the Russian Federation, Iran and Azerbaijan. Diversification through the imports of liquefied natural gas (LNG) started with long-term contracts with Nigeria and Algeria with a growing volume of short-term LNG contracts and spot purchases from other suppliers.

Future gas demand is projected to increase driven by higher residential gas consumption. As natural gas connections expand to all 81 provinces, residential demand is projected to increase by 50 percent in the next decade. Natural gas is used mainly for heating and is heavily seasonal, peaking during winter months. Demand peaks in the residential sector have led to curtailment of gas service to the power sector during cold periods and generation of power from occasionally more expensive – but certainly less environmentally friendly fuels, such as fuel oil and coal. Storage capacity currently stands at 3.1 billion cubic meters (bcm), mostly available in the Silivri Gas Storage Facility (or less than six percent of annual consumption). A Bank-supported project to develop a 1.2 bcm gas storage utilizing the Tuz Golu salt formation is underway. A project to expand the capacity of the Silivri from 2.8 bcm to 4.3 bcm is at an early stage of implementation. When completed, Turkey's storage capacity would increase to 5.5 bcm or about 9 percent of annual gas consumption in the mid-2020s.

In the absence of sufficient storage, Turkey has been increasingly relying on short-term and spot LNG to meet its natural gas demand which exposes the country to the spot price premium and market price volatility risks. In 2016, Turkey was among the top-10 LNG importing countries globally with volumes close to 5.5 million tons of LNG. Amongst countries in Europe, Turkey's LNG imports constituted about 15 percent of total LNG imports; however, its share of short-term and spot purchases was much higher at 28 percent of Europe's imports. The Government's strategy therefore calls for rapid development of additional gas storage capacity to further diversify gas supply sources and improve energy security and flexibility. The proposed project would raise the capacity of the Tuz Golu Gas Storage Facility from about 1.2 bcm to about 5.4 bcm, thereby increasing Turkey's total underground gas storage capacity to 9.7 bcm - or about 16 percent of projected annual gas consumption by 2024. Though a major improvement compared to the current capacity of less than 6 percent, it remains modest compared to similar natural gas import-dependent European countries (France – 33 percent; Italy – 29 percent; Germany – 35 percent).

Private participation in the energy sector in Turkey is significant. The 2001 Natural Gas Market Law (NGML) provided a strong legal foundation for gas sector reform and private sector participation in the gas sector. The NGML abolished BOTAŞ' monopoly rights on natural gas import, distribution, sales and pricing and country-wide



private gas distribution companies exist today. The Energy Market Regulatory Authority (EMRA) carried out a program of competitive tendering of distribution licenses since 2003 resulting in 77 provinces of the country being supplied with natural gas by 72 gas distribution companies (with 81 provinces to receive gas by end-2018). The Government is also looking to the private sector to invest in gas storage and as of end-2016, EMRA had granted five companies licenses to develop underground natural gas storage. However, none of the private sector projects have been developed. In power generation, natural gas currently represents 32 percent of the total generation mix (or about 26,000 megawatts of capacity) and is almost entirely owned and operated by private companies.

In the broader context of gas market development in Turkey that includes both private and public interventions, storage has an important role in fulfilling the country's energy security needs. As the country moves to further liberalize the natural gas market (as it has with electricity sector), the development of private storage facilities can be expected to follow. In general, underground storage projects— and salt caverns in particular – take years to materialize given the inherent technical, geological and regulatory risks. The size of the investment required and the general budgetary constraints in the oil and gas industry in recent years further limited private companies' interest to invest in such projects and in the timeframe required by the government. Due to the high national priority placed on energy security and the need to cover seasonal and daily gas demand peaks, storage projects at Silivri and Tuz Golu are being carried out through public investment. This approach is also consistent with international experience in that the initial investments in gas storage facilities in salt formations have been realized by public financing, such as Jintan of China, Etzel of Germany and Kaliningradskoye of Russia. When underground storage projects demonstrate technical and commercial viability with a tested regulatory framework, projects sponsored by private companies are more likely to materialize.

### **C. Proposed Development Objective(s)**

Development Objective(s) (From PAD)

The Project Development Objective is to increase the reliability and security of gas supply in Turkey by expanding underground gas storage capacity in the country.

#### Key Results

The results expected are:

- (a) Reduction of gas curtailments due to available storage at Tuz Golu Gas Storage Expansion Plant;
- (b) Reduction of spot LNG purchases due to available storage at Tuz Golu Expansion Plant; and
- (c) Increasing gas storage capacity through the Tuz Golu Gas Storage Expansion Plant

### **D. Project Description**

**The Project consists of three components.**

**Component 1: Tuz Golu Gas Storage Expansion Plant.** This includes:



- (a) Water and Brine Pipelines including construction of a 117-km fresh water supply line (56-60" diameter) from the Hirfanli Reservoir to the project site and a 31-km brine discharge line from the 40 wells back to Tuz Golu. This will also include several pumping stations and storage reservoirs; and
- (b) Surface Facilities containing all necessary injection and withdrawal units, compressors and connections to the natural gas grid;
- (c) Subsurface Facilities including drilling of wells and leaching of salt caverns for gas storage purposes;
- (d) Electricity Supply: electricity transmission lines for water pumping stations and operations of surface and sub-surface facilities.
- (e) Instrumental, Control and Telecommunications Systems: a Supervisory Control and Data Acquisition (SCADA) system for the water supply line, brine discharge line and surface facilities and tools for communicating between the proposed project and the general SCADA system in Ankara.
- (f) Contractor Services: Provision of management services, including detailed design and engineering, procurement, installation, testing and inspection, commissioning and operational acceptance; and training of the BOTAŞ personnel.

**Component 2: Construction Supervision.** This includes:

- (a) Consultants responsible for supervising the construction and installation of the facilities as well as for the inspection and testing of materials, plant and equipment both during the construction and installation of the facilities.

**Component 3: ESIA and RAP Monitoring.** This includes:

- (a) Consultants responsible for regular monitoring of compliance of the construction activities with the Environmental and Social Impact Assessment (ESIA) and the Resettlement Action Plans (RAP);
- (b) Each stage of the construction activities will be checked and monitored by consultants in accordance with the frequencies specified in an Environmental and Social Management Plan (ESMP) ensuring all environmental and social standards are being fully satisfied and all services are in full conformity with the ESMP developed by BOTAŞ based on the Bank-approved ESIA; and
- (a) The consultants will be responsible for monitoring the implementation of the RAP that will be prepared by BOTAŞ in line with the Bank-approved Resettlement Policy Framework (RPF).

## **E. Implementation**

### Institutional and Implementation Arrangements

Project implementation started in June 2017 with the issuance of the prequalification invitation and BOTAŞ plans to complete the project by October 2023. The project is implemented by Turkey's national gas company (BOTAŞ). BOTAŞ was established on August 15, 1974 by the Turkish Petroleum Corporation under Decree No. 7/7871, for



the purpose of transporting Iraqi crude oil. Because of Turkey's increasing need for diversified energy sources, in 1987, BOTAŞ expanded its original purpose of transporting crude oil through pipelines to cover natural gas transportation and trade activities. Although BOTAŞ' monopoly rights on natural gas import, distribution, sales and pricing were abolished by the 2001 NGML, BOTAŞ, continues to dominate the gas market with a market share of 82 percent of annual consumption. The Government has been considering amending the 2001 Law to liberalize gas imports and restructure BOTAŞ into separate trading, transmission and storage companies in order to promote wholesale gas market development. Within BOTAŞ the day-to-day project implementation is carried out by a Project Management Unit (PMU) led by the Head of the Natural Gas Storage Department. Other departments provide inputs in their areas of responsibility, including procurement, finance, environment and social safeguards. As the implementing agency of the ongoing project, BOTAŞ as a company – and the PMU – are experienced in the development of underground gas storage. The PMU is familiar with, and experienced in, applying Bank guidelines and procedures for both fiduciary (procurement and financial management) and safeguards (environmental and social) policies as part of the ongoing project implementation. As is the case in the ongoing project, the PMU will be supported by a construction supervision consultant and an ESIA and RAP monitoring consultant throughout the project implementation period.

#### **F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)**

The proposed Project is an expansion of the ongoing Tuz Golu Underground Gas Storage project financed by the Bank. The project is developed on an underground salt formation located close (nearly 40 km) to Tuz Golu (Salt Lake), within the borders of Aksaray, Konya and Ankara provinces in Central Anatolia, Turkey. The proposed project is expected to create an additional 40 underground caverns (in addition to the 12 caverns of the ongoing project) to store natural gas. Water for solution mining will be obtained from the Hirfanli Dam Reservoir on the Kizilirmak River through a 117 km fresh water pipeline. The brine from solution mining will be discharged in the Tuz Golu salt lake, using gravity flow, through a 31 km brine disposal pipeline and a 21 km natural gas branchman line will connect the caverns to the national gas grid. Three pumping stations and five water storage reservoirs and other above ground facilities (solution mining plant, compressor facility, gas treating facility, operations and administration buildings), access roads and energy transmission lines will also be established among/or in close proximity to small highland settlements on public pasturelands. The new pipelines will be built, to the extent possible, parallel to the existing pipelines mostly using the same right-of-way. The caverns will be located on pasturelands on or near several highland settlements in the area. The facility, upon completion, will have a total storage capacity of 5.4 billion cubic meters of natural gas (including 1.2 from the ongoing project). The proposed project will be developed following a design, supply and installation contract, therefore, the detailed design and exact footprint of all assets will be determined only after the contract is awarded. Although the exact locations of the project components are not known yet, the Project's above ground facilities and wells will be located within BOTAŞ' license area of 1200 Ha. The environmental and social impacts and the impact areas of the proposed project are expected to be similar to the ongoing project (albeit larger in scope) since the method of well drilling, leaching and discharge and the license area is the same. The project is likely to involve both physical and economic displacement due to temporary and/or permanent involuntary land acquisition (approx. 4,085 land owners) and result in labor influx. Due to its potential environmental and social impacts, this is considered to be a high risk project.



**G. Environmental and Social Safeguards Specialists on the Team**

Sanjay Agarwal, Social Safeguards Specialist  
Arzu Uraz Yavas, Social Safeguards Specialist  
Jelena Lukic, Social Safeguards Specialist  
Esra Arikan, Environmental Safeguards Specialist

**SAFEGUARD POLICIES THAT MIGHT APPLY**

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	<p>The potential environmental and social impacts of the proposed project are likely to be diverse and complex and therefore the project is assigned a Category A (the ongoing Bank-financed project is also Category A). The national EIA process for the proposed project was completed in March 2017 together with series of public consultation meetings. The national EIA did not address all requirements of WB safeguard policies for a Category A project, so BOTAS prepared an ESIA and shared several versions with the Bank for review. An earlier version of the ESIA and national EIA was disclosed in country and on Bank's external website on June 6, 2017. The latest and final version was submitted on March 19, 2018 and upon Bank clearance disclosed in-country on March 27, 2018 and on the Bank's external website on March 27, 2018. There are no significant material differences between June 2017 and final versions of the ESIA.</p> <p>In line with the Bank's comments, the latest ESIA has much improved sections such as alternative analysis, cumulative impact assessment, health and safety etc. BOTAS also performed risk assessment and identified ecological, cultural and socio-economical no-go areas and committed that design works will take these no-go areas into consideration when the well locations and exact locations of the other facilities (pipelines, above ground facilities, camp</p>





sites, etc.) will be identified. In this respect, BOTAS will guide their contractor for preparing site evaluation reports including environmental and social assessment of the project units or processes defined during the detailed design phase before construction of the unit or implementation of the process in order to assess potential impacts and to define related mitigations as well as to prove “no go areas” avoided during in parallel to the ESIA Report.

Moreover, BOTAS improved the presentation of the results of the monitoring studies being conducted for the ongoing project, linked it with the proposed project, and established a sound Environmental and Social Management System (ESMS). The ESMS is critical since BOTAS needs a strong system to control contractors, supervision consultant and ESIA&RAP monitoring consultant during the implementation of the ESIA commitments. The ESIA (Version K) reflects previous rounds of Bank comments; with substantial improvements in the (i) the Executive Summary of the ESIA, since this is mainly providing an outline of the ESIA although it should summarize the main residual impacts of the project and provide a summary of the ESMS (ii) GHG analysis (iii) operational phase air emission modeling and air quality impact evaluation (iv) ESMS.

On the social side, the ESIA integrates the Bank's comments by adding additional socio-economic data, improving analysis of social impacts, elaborating entitlements to informal users, elaborating the identification process of vulnerable groups and establishing a RAP Fund. Further, the RPF, the SEP and Labor Influx Guidelines are much improved and now acceptable to the Bank.

An advanced draft of the ESIA (Version J) was used by BOTAS to conduct the 2nd round of public consultations. BOTAS disclosed the ESIA, SEP and RPF on February 15, 2018 (at the project site and local government offices physically and on their website) and conducted consultations on March 5-6, 2018 at the site with project affected people and provincial level representatives of government agencies (i.e. Ministry of Environment and



Urbanization, Ministry of Culture and Tourism, etc.) and with NGOs. BOTAS revised the ESIA to address Bank team's comments and to integrate public consultation feedback and prepared version K. This version was cleared by the RSA on March 22, 2018. The full package (including RPF, SEP, etc.) will be disclosed in English and Turkish for Public Review both at the Projects Site and General Directorate of BOTAS in addition to electronic disclosures on BOTAS and WB websites.

The brine water generated from the salt cave solution mining process will be discharged to Salt Lake. The receiving body, Salt Lake, is designated as a Special Environmental Protection Area by Turkish Government and also considered as a Class 'A' wetland by international criteria, and critical natural habitat by OP 4.04. Impacts of the project, specifically brine discharge, to the lake is assessed in details in the ESIA report. The lake was also used as brine receiving body during the original project which involved drilling and leaching of 12 wells in the same license area and the ESIA report of the original project showed that no long term negative environmental impacts are anticipated from the project since the Salt Lake is currently saturated with brine of the same quality as the discharge. During Bank supervision of the original project, ESIA monitoring reports were reviewed and no major negative impacts were observed at the receiving body. The ESIA of the project also shows that the anion, cation concentrations of the brine water is similar to Salt Lake composition. The ESIA also takes into account the increased amount of brine discharge in a shorter period of time (when compared to the original project) and therefore the report evaluated the increase in the depth of the lake also. ESIA states that the increase in the depth is also negligible and ecological studies showed that the change in the quantity of the lake will be assimilated and return to its original values after the leaching operation is complete. And the flora species are resistant to salt therefore the brine discharge will not impact the species. There was a critical habitat (E6.2 Continental inland salt steppes and marshes) found in the planned brine discharge location, and after detailed floristic studies it was

Natural Habitats OP/BP 4.04

Yes



suggested to change the places of the diffusers to avoid any physical disturbance on this habitat caused by pipeline construction. Still, it is expected that the brine discharged will be flowing to some parts of the habitat. Presence of the military zone is a major constrain to find another technical or financially feasible alternative discharge location for fully avoiding this habitat. But, ongoing monitoring studies of exiting project show that no negative indirect impact has been observed on the habitat due to brine discharge of existing leaching operation. In this respect, no major negative impact is expected on this habitat due to flow of the brine discharge. Furthermore, BOTAS has developed a Biodiversity Action Plan as a part of the ESIA in order to monitor and mitigate the potential risks and impacts of the project.

Forests OP/BP 4.36

No

It is anticipated that the proposed project will not involve any activities which would result in triggering this policy. The project location and all project activities will be conducted on non-forest areas.

Pest Management OP 4.09

No

The borrower will not use pesticides for land clearing or other activities. Any activity which may result in triggering on this policy will be ineligible and this is reflected in the ESIA of the project.

Physical Cultural Resources OP/BP 4.11

Yes

The license area includes a registered archeological site. During project layout (including wells, pipelines, access roads, etc.) the borrower will avoid passing through any culturally sensitive areas. For this purpose, the ESIA defines no-go areas from cultural heritage perspective. The ESIA of the project addresses the national laws and regulations concerning investments taking place in any culturally sensitive areas and identifies measures if any gaps are observed between national regulations and OP 4.11. Moreover, the ESIA has a cultural heritage management plan, so that in case a registered site will not be avoided, the borrower will prepare a site specific cultural heritage management plan accordingly (after design is complete and during project implementation). The construction contract will have chance find provisions as a requirement of the contractor. Chance find procedures are also discussed in details in the ESIA's Cultural Heritage Management Plan.



Indigenous Peoples OP/BP 4.10	No	<p>Policy OP 4.10 is not triggered since there are no indigenous people (according to WB OPs) in Turkey. The exact footprint of the project will be known only after the final design of the project is complete, yet construction activities will require acquisition of both public and private lands. Consequently, the Bank's policy on Involuntary Resettlement (OP 4.12) has been triggered. Since the exact locations are unknown, a Resettlement Policy Framework (RPF) has been prepared for the project; Resettlement Action Plans (RAPs) will be prepared by BOTAS after the design is complete. The project is likely to involve both physical and economic displacement due to temporary and/or permanent involuntary land acquisition. The construction of pipelines (fresh water, brine and gas) will generate temporary impacts on land while surface facilities and well locations are expected to have major impacts due to permanent land take. In line with the RPF, Resettlement Action Plans (RAPs) will be prepared by BOTAS both for pipelines and surface facilities/well locations.</p>
Involuntary Resettlement OP/BP 4.12	Yes	<p>The license area for the Project is 1,200 Ha which is four times larger than the existing Project. BOTAS' preliminary assessment shows that a total of 110 Ha is likely to be permanently acquired (including wells, pump stations, water storage tanks, transmission line pole locations and valve chambers, of which the scale of land acquisition is currently unknown). Easement arrangements will be made to restrict land use for additional 542 Ha of private land under permanent easements and 108 Ha under temporary easements. Approximately 4,085 land owners are likely to be affected either through permanent land acquisition or easement arrangements (excluding those for permanent ownership rights for well locations, pump stations, water storage tanks, transmission line pole locations, valve chambers). These numbers are likely to change after detailed engineering studies are completed once the contract is awarded.</p> <p>Under the Project, land will be acquired, permanently or temporarily, under four types of arrangements - i) transfer of ownership rights (i.e.</p>



land acquisition); ii) permanent easement rights; iii) temporary easement rights (specific easement rights during the construction of pipelines; these will be followed by permanent easement after completion of construction); and iv) contractual rights (temporary occupation of land by the Contractor). Land will be permanently acquired by BOTAS for the construction of surface facilities, wells, access roads and transmission line poles. Pipelines will require both permanent and temporary easement rights. For stock yards and temporary camp facilities, rental agreements will be made. BOTAS will try to avoid and minimize land acquisition, to the extent possible, by building brine pipelines, gas pipelines and electricity transmission lines on existing ROW. BOTAS will also make efforts to acquire land through negotiations to the extent possible. Where negotiations fail, the RPF will be followed.

The loss of agricultural lands and pasture lands, which are critical for animal grazing and livestock, will impact agriculture and animal husbandry activities, which are the main economic activities of the settlements in the region. The Project affected area includes public lands which are used as pastures for animal grazing and crop production and private lands which are used for agriculture and housing. The social baseline shows that there are informal users in the project area, mainly on pasture lands. During RAP preparation, BOTAS will conduct a census to identify owners and users of project affected lands that are likely to be acquired, and develop an assets inventory. Vulnerable groups entitled for compensation and livelihood support will also be identified during RAP implementation. Initial findings reveal that vulnerable elderly communities live in the highlands for most part of the year. BOTAS will use the RAP Fund to compensate for and mitigate impacts that are not covered under national laws.

The ESIA conducted during project preparation found and the Bank's due diligence subsequently confirmed that four (4) informal households had been physically relocated under the existing project but mitigation measures had not been conducted in



line with the project RAP. BOTAŞ compensated the four affected households for their losses, as documented in the resettlement audit report prepared by BOTAŞ and reviewed by the Bank. This experience resulted in the establishment of a RAP Fund by BOTAS to avoid similar cases in the Expansion Project as such cases are not eligible for compensation or assistance under national legislation.

Since the fresh water necessary for leaching the salt caverns will be supplied from an upstream dam (Hirfanli Dam and reservoir), the World Bank's policy on dam safety is triggered for the project, as is the case for the ongoing project. The amount of water to be utilized from the reservoir and its impacts on the dam is evaluated in the ESIA. The State Hydraulic Works (DSI) and the Electricity Generation Corporation of Turkey (EUAŞ) are responsible for the Hirfanli dam structures and the hydro power plant, respectively. During the preparation of the additional finance for the ongoing project, dam safety assurance measures were agreed with DSI and BOTAŞ and EUAŞ for implementation by the DSI field organization. These were: i) seepage analysis based on installed observation well and geophysical resistivity survey; ii) seismic hazard assessment and pseudo-static stability analysis of the dam; iii) global movement monitoring /geodetic survey; iv) upgrading of the Operation & Maintenance Plan, and v) drafting of the Emergency Action Plan. These measures have been updated and revised in line with the Bank review for the proposed project including the operations and maintenance manual. The Emergency Action Plan was reviewed by the Bank and will be finalized in line with the Bank's comments during the early stages of implementation of the proposed project. DSI is the national regulator of dam safety and responsible for running dam safety programs including periodic inspections and safety assessments of its dams. These measures did not involve significant and complex remedial works. For the proposed project, the Bank's dam safety specialist conducted a due diligence of the Hirfanli Dam in February 2017 and agreed actions with BOTAŞ and the dam operator DSI that were due by appraisal have been met.

Safety of Dams OP/BP 4.37

Yes



Projects on International Waterways OP/BP 7.50	No	Hirfanli Dam which is the main fresh water source for the project, and the Tuz Golu (Salt Lake) which is the discharge body are all located in national hydrological basins.
Projects in Disputed Areas OP/BP 7.60	No	

**KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT**

**A. Summary of Key Safeguard Issues**

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

The Bank has been financing the ongoing Tuz Golu facility under the Gas Sector Development Project implemented by BOTAS, which was designated as Category A according to OP 4.01. The Bank is now considering financing the expansion (which is four times larger) of this ongoing project. The potential environmental and social impacts of the proposed Gas Storage Expansion Project (GSEP) are likely to be more diverse and complex when compared to the existing project owing to the larger footprint and the fact that detailed design will be completed by the contractor after contract award. The national EIA process for the proposed project was completed in March 2017 and EIA received the approval from Ministry of Environment and Urbanization. Based on the Bank's review of the national EIA, BOTAS was asked to prepare an ESIA to fulfill Bank requirements and to address the gaps (between national EIA and Bank's OPs). BOTAS shared the ESIA report on March 19, 2018 and according to the review all gaps have been fulfilled and Bank's comments on different rounds of review were fully addressed. Therefore, the ESIA was cleared and the final English and Turkish versions are disclosed in country on March 27, 2018, respectively. The Bank processed these for disclosure on its external website on March 27, 2018.

Main environmental impacts according to the ESIA report are expected to occur during: (i) construction of fresh water supply line, brine discharge line, (ii) well drilling and leaching, (iii) construction of above ground facilities, camp sites, access roads, energy transmission lines, and (iv) operations phase. Impacts expected for construction activities are: dust emission sourced from the vehicles movements, solid waste (including probable hazardous as well) generation, wastewater accumulation in sewage tanks, and noise impacts. Impacts of the drilling and leaching phase will include: in addition to construction phase impacts such as dust, noise, solid waste, wastewater, generation of some special wastes such as drilling mud, impacts of brine discharge on Salt Lake (which is a nationally and internationally protected ecological site and a critical natural habitat), impacts of water abstraction on Hirfanli Dam. Operation phase impacts will be mainly due to: dust emissions due to vehicle movement, NOx emissions from compressor stations (operating 40 days a year), waste and wastewater generated from the permanent workers, noise generation due to compressors and other activities. All these impacts are evaluated in details in the ESIA report which concluded that no residual significant impacts on the environment is foreseen. Still, in order to assure full compliance with the mitigation and monitoring measures as set in the ESIA, BOTAS will establish an ESMS, hire environmental and social personnel at the site (in addition to HQ based staff), hire ESIA and RAP Monitoring consultant, and these will occur before any activities start at the GSEP site. Furthermore, the ESIA report specifically focuses on the impacts of the project on critical habitats located project area influence. These areas are also under the influence of existing on-going project and other project, which are considered for the cumulative impact assessment. The ESIA indicates that there is no impacts observed on these habitats during the implementation of ongoing project activities (specially leaching discharge). In the light of this finding, the ESIA report states that no major impact is expected on the critical habitat



located near to proposed discharge location of GSEP. In addition, Biodiversity Action Plan is included in the ESIA report to monitor and mitigate potential impacts of GSEP. Still, in order to assure full compliance with the mitigation and monitoring measures as set in the ESIA, BOTAS will establish an ESMS, hire environmental and social personnel at the site (in addition to HQ based staff), hire ESIA and RAP Monitoring consultant, and these will occur before any activities start at the GSEP site. Additionally, BOTAS will direct the Contractor to prepare site evaluation reports including Environmental and Social Assessment of the units or process (i.e. ETL's access roads, camp sites, pipeline routes etc.) defined or subject to change as a result of detailed design. These Site Evaluation Reports will be prepared before construction or implementation of the process and shared with the Bank.

The Project will be implemented in semi-arid rural areas that are sparsely populated and used mostly for animal grazing and crop production. The project is expected to also impact economic livelihoods. The loss of agricultural lands and pasture lands, critical for animal grazing and livestock, will impact agriculture and animal husbandry activities which are the main economic activities of the settlements in the region. Seasonal workers and beekeepers may also be impacted. Further labor influx is also likely.

The exact scale and scope of social impact will not be known before the detailed designs are ready, but the acquisition of private lands and the loss of livelihoods is expected to occur. A preliminary assessment shows that about 110 Ha of private land is likely to be permanently acquired (including well locations and other areas such as pump stations, water storage tanks, transmission line pole locations, valve chambers), with an additional 542 Ha under permanent easements and 108 Ha under temporary easements.

Approximately 4,085 land owners will potentially be affected either through permanent land acquisition or easement arrangements (excluding those with permanent ownership rights for well locations, pump stations, water storage tanks, transmission line pole locations, valve chambers, etc. whose numbers are still unknown). These numbers are likely to change after detailed engineering studies are completed once the contract is awarded. It is expected that additional workforce will need to be brought during the construction and operation phases of the project. While the skilled workforce will be brought from outside of the project areas, the project will make efforts to hire locally, especially for the semi-skilled and unskilled positions. It is estimated that the project will engage 500 employees (400 construction workers) during construction phase, and 100 workers during the operational phase.

AIB and WB are proposing to jointly co-finance the Project. The two institutions are working closely together on project preparation and appraisal. World Bank policies and procedures on safeguards, procurement, financial management, project monitoring, and reporting will be used for the Project activities to be financed in whole or in part out of the loan proceeds of the Bank and AIB under a joint-co-financing arrangement. The two institutions are working jointly on project appraisal. This joint World Bank/AIB collaborative approach is being successfully implemented in the ongoing TANAP project. Additionally, Islamic Development Bank is keen on supporting the project through parallel co-financing and will be relying on the Bank's due diligence extensively as well.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area: Construction impacts of the proposed Project are temporary and will mainly occur during well drilling and construction of pipelines and above ground facilities. The leaching process will take approximately 4-5 years and during that time there will be brine discharge to the Salt Lake. Brine discharge impacts, both quantitative and qualitative, are evaluated in details in the ESIA report. According to the analysis results, the brine impact on the Salt Lake is expected to cease after leaching is completed and the lake will turn to its original conditions with the lake's assimilation capacity. Therefore, no long term impacts are expected. The operation phase impacts will be mainly related to air quality emissions, coming from the gas compressors. Air quality model was run for the operation phase and the results are provided in the ESIA. The results show that the emissions will be below the national thresholds (which is in line with





EU policy). BOTAS is still working on the comparison of these values with regards to WBG EHS guidelines. Since the compressors are assumed to work only 40 days in a year, the emission impacts on ambient air quality are not expected to be significant.

The impacts due to loss of land will potentially be long term. These have been discussed above in detail. The RPF and RAPs for surface facilities and well locations will address compensation and livelihood restoration measures for permanent loss of land.

### 3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

The project ESIA evaluates alternatives for the following aspects (i) gas storage method (ii) leaching method (iii) water resource for leaching; and (iv) route of fresh water and brine discharge lines. One of the most critical activities in the project is the leaching operation. This requires large amounts of fresh water for mining the underground salt formation. The ongoing project considered groundwater as a water source in the initial design phase; however, due to water scarcity in the region, it was decided that fresh water will be brought from an upstream reservoir. For the proposed Project, the safest alternative evaluated was to construct a parallel (larger) pipeline to the existing fresh water line. This alternative is expected to have minimum environmental and social implications since the pipeline will be mainly in the right of way of the existing line. For the brine discharge line and discharge point, several alternative routes were evaluated in the ESIA and due to potential risks to a critical habitat, BOTAS opted to place the diffuser locations far from the critical habitat in order to avoid the physical impact during construction of discharge pipeline. Presence of Military Zone near to diffuser location is another constraint considered during alternative site selection of the discharge location. Since the exact locations of the wells or above ground facilities are not exactly known at this stage, the ESIA also identified no-go areas (from environmental, socio-economical and cultural perspective) and the design studies will consider these no-go areas and identify alternative locations for project facilities (if necessary). Furthermore, the no go areas for social impacts, that have been specified in the ESIA, will help in avoiding physical structures during the design phase. Existing routes will be followed for new pipelines. BOTAS intends to minimize permanent land take by acquiring well locations and not the entire project footprint.

### 4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

BOTAS has been constructing and operating the existing Gas Storage project since 2011 and 2017, respectively and according to the environmental monitoring reports, there have not been any major non-compliances or grievances, except one which is discussed below, regarding compliance with the environmental and social documents of the existing project. During the ESIA baseline studies, it was revealed that 4 informal households on pasture lands were both physically and economically displaced without being provided any compensation, due to the operationalization of Underground Storage Well No. 8 (UGS 8). BOTAS compensated the four affected households for their losses in March 2018, as documented in the resettlement audit report prepared by BOTAS and reviewed by the Bank. A RAP Fund has been established by BOTAS to ensure that similar cases in the Expansion Project are provided compensation or assistance. The RPF for the Expansion Project also integrates entitlements for informal users which will help avoid similar cases, which are not covered under national legislation.

BOTAS's capacity to manage environmental and social issues is weak but is being enhanced. Since the contract award of the existing project, BOTAS has hired an ESIA Monitoring Company which had permanent staff at the site since 2011 and also data they have collected helped BOTAS to prepare the ESIA of the Gas Storage Expansion Project (GSEP) ESIA. During the preparation phase of the GSEP, in line with Bank comments, BOTAS has enhanced the capacity of their Quality, Environment, Health and Safety Department by hiring a manager, one environment and one social expert (in the headquarters). However, before any activity starts at the GSEP project site, BOTAS agreed to establish a similar



QHSE department at the work site as well. BOTAS will also employ communication specialists to engage stakeholders better. In addition to this, it was agreed that the bidding documents will require the main contractor to have a HSE system, and in the scope of the project there will be an Engineering Supervision and an ESIA and RAP Monitoring Consultant. BOTAS and the Bank are expected to agree to establishing a direct reporting line between the consultant company and the Bank. Furthermore, BOTAS will also establish consultation committees comprising of representatives from PAPs, chambers of commerce and industry, regional authorities, local schools and businesses.

Due to the structure of the main contract, design works will be completed during project implementation stage. Finalized designs may lead to changes/revisions in the safeguard documents. BOTAS is committed to fully establish a sound Environmental and Management System including a Management of Change Procedure - as described in the ESIA - which frames the review/approval processes of the safeguard documents after design works are complete and during project implementation phase. However, Bank and BOTAS will need to agree on the details of the ESMS and project implementation phase prior/post review arrangements for the environmental safeguards documents. It is expected that the final decisions will be achieved during negotiations stage.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Due to the complexity of the project and the wide-ranging impacts on multiple stakeholders, BOTAS prepared a Stakeholder Engagement Plan (SEP) with a detailed Grievance Redress Mechanism as part of the ESIA. The SEP identifies key stakeholders that are expected to be directly or indirectly affected by the project, namely - PAPs including non-organized groups that may be vulnerable (i.e., elderly, persons with disabilities, etc.) land owners and residents that may formally and/or informally use communal/state/treasury land; seasonal workers and herders; project and contractors' employees; national and local state institutions and organizations (e.g. Ministry of Environment and Urbanization, Aksaray Governorship, Sultanhanı Municipality, etc.) and other interest groups, such as universities and their foundations, cooperatives, local business establishments, business associations, chambers of commerce, media and others (i.e., labor, youth, religious, businesses, etc.).

The SEP will be administered by BOTAS' social team, which will be present both in headquarters and on site. Engagement activities will be initiated at the early stage of the project to ensure timely and transparent information disclosure. BOTAS will inform stakeholders about project impacts, construction schedules, rights and entitlements pertaining to resettlement and compensation, the RAP Fund and the project grievance redress mechanism. BOTAS will adopt a gender sensitive approach during community engagement activities. Critical dates and issues (i.e. cut-off date, entitlements, negotiations, start of construction etc.) will be announced and disclosed in places accessible to all stakeholders including vulnerable groups, in simple language. Materials such as a Guideline to Land Acquisition and Compensation will be prepared and distributed widely. BOTAS will have two full time community relations specialists (on site and in headquarters) dedicated to coordinate and implement engagement activities. BOTAS will also establish consultation committees comprising of representatives from PAPs, chambers of commerce and industry, regional authorities, local schools and businesses.

In addition to the national GRM, BOTAS has already established a project GRM that will serve for both the ongoing project and the expansion project. Local stakeholders have already been informed of the GRM during the second round of consultations held by BOTAS in Sultanhanı district on March 5th, 2018. BOTAS will also ensure that contractors also establish a GRM in line with the provisions provided in the SEP. The GRM will aim to collect all project related concerns, requests, complaints, serving both internal (project employees) and external stakeholders. BOTAS will introduce the project GRM to affected stakeholders through the ESIA and RPF consultations initially and during project implementation subsequently. On site community relations specialists of BOTAS and the Contractor will be



responsible for addressing site level grievances on a daily basis. The community relations specialist in the BOTAS Social Team at headquarters will monitor and evaluate all grievances received through the national and project GRMs.

**B. Disclosure Requirements**

**Environmental Assessment/Audit/Management Plan/Other**

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
19-Mar-2018	27-Mar-2018	07-Jun-2017

**"In country" Disclosure**

Turkey  
27-Mar-2018

Comments

**Resettlement Action Plan/Framework/Policy Process**

Date of receipt by the Bank	Date of submission for disclosure
19-Mar-2018	27-Mar-2018

**"In country" Disclosure**

Turkey  
27-Mar-2018

Comments

**C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)**

**OP/BP/GP 4.01 - Environment Assessment**

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes



**OP/BP 4.04 - Natural Habitats**

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

NA

**OP/BP 4.11 - Physical Cultural Resources**

Does the EA include adequate measures related to cultural property?

Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

Yes

**OP/BP 4.12 - Involuntary Resettlement**

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

**OP/BP 4.37 - Safety of Dams**

Have dam safety plans been prepared?

Yes

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?

NA

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?

Yes

**The World Bank Policy on Disclosure of Information**

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes



### All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

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