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IMPLEMENTATION COMPLETION AND RESULTS REPORT
ON

A LOAN IN THE AMOUNT OF US\$400 MILLION
TO

SOUTHERN GAS CORRIDOR CJSC (SGC)
WITH THE GUARANTEE OF THE REPUBLIC OF AZERBAIJAN

AND

A LOAN IN THE AMOUNT OF US\$400 MILLION
TO

BORU HATLARI ILE PETROL TASIMA A.S. (BOTAŞ)
WITH THE GUARANTEE OF THE REPUBLIC OF TURKEY

FOR THE
TRANS-ANATOLIAN NATURAL GAS PIPELINE PROJECT

January 31, 2022

Energy & Extractives Global Practice
Europe And Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective December 31, 2021)

Currency Unit = Azerbaijani Manat

Currency Unit = Turkish Lira

AZN 1.699 = US\$1

TL 13.3707 = US\$1

US\$ 1.39959 = SDR 1

FISCAL YEAR

January 1 — December 31

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ABBREVIATIONS AND ACRONYMS

AGSC	Azerbaijan Gas Supply Company Limited
AIIB	Asian Infrastructure Investment Bank
AZN	Azerbaijani Manat
bcm	billion cubic meters
BCE	Before Common Era
BOTAŞ	Petroleum Pipeline Corporation of Turkey
BP	BP plc (formerly known as British Petroleum)
BVS	Block Valve Station
CPF	Country Partnership Framework
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECA	Europe and Central Asia Region
EIB	European Investment Bank
EITI	Extractive Industries Transparency Initiative
ESIA	Environmental and Social Impact Assessment
EU	European Union
FM	Financial Management
FY	Fiscal Year
GDP	Gross Domestic Product
GHG	Greenhouse Gas
ICR	Implementation Completion and Results Report
IEA	International Energy Agency
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IFI	International Financial Institutions
IFR	Interim Financial Report
IPF	Investment Project Financing
KfW	KfW Development Bank (originally Kreditanstalt für Wiederaufbau)
LNG	Liquefied Natural Gas
M&E	Monitoring and Evaluation
MCC	Main Control Center
MFD	Mobilizing Financing for Development
MIGA	Multilateral Investment Guarantee Agency
mtCO ₂ -eq	Million tons of CO ₂ -equivalent
MTR	Mid-Term Review
MW	Megawatt
MWh	Megawatt-Hour
OHS	Occupational Health and Safety
OP	Operational Policy
RAP	Resettlement Action Plan
RoW	Right-of-Way
SCADA	Supervisory Control and Data Acquisition
SCD	Systematic Country Diagnostic

SCP	South Caucasus Natural Gas Pipeline
SCPx	SCP Expansion
SDR	Special Drawing Rights
SGC	Southern Gas Corridor Closed Joint Stock Company
SEP	Stakeholder Engagement Plan
SOCAR	State Oil Company of Azerbaijan Republic
SOFAZ	State Oil Fund of Azerbaijan
TANAP	Trans-Anatolian Natural Gas Pipeline
TAP	Trans-Adriatic Natural Gas Pipeline
TL	Turkish Lira
TP	Turkish Petroleum Corporation
US\$	US Dollar
WB	World Bank

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P157416	Trans-Anatolian Natural Gas Pipeline Project
Country	Financing Instrument
Europe and Central Asia	Investment Project Financing
Original EA Category	Revised EA Category
Full Assessment (A)	

Organizations

Borrower	Implementing Agency
Boru Hatlari Ile Petrol Tasima A.S. (BOTAS), Southern Gas Corridor CJSC (SGC)	TANAP Dogalgaz Iletim A.S. (TANAP)

Project Development Objective (PDO)

Original PDO

The Project's Development Objective is to diversify Azerbaijan's gas export markets and improve the security of Turkey's and South East Europe's energy supply.



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing			
IBRD-86790	400,000,000	400,000,000	400,000,000
IBRD-86810	400,000,000	400,000,000	400,000,000
Total	800,000,000	800,000,000	800,000,000
Non-World Bank Financing			
Borrower/Recipient	2,400,000,000	2,400,000,000	2,980,260,000
Asian Infrastructure Investment Bank	600,000,000	600,000,000	600,000,000
European Bank for Reconstruction and Development	500,000,000	500,000,000	500,000,000
EC: European Investment Bank	1,300,000,000	1,300,000,000	270,000,000
Private Commercial Sources (identified)	2,000,000,000	2,000,000,000	159,000,000
Foreign Private Commercial Sources (unidentified)	1,000,000,000	1,000,000,000	1,000,000,000
Total	7,800,000,000	7,800,000,000	5,509,260,000
Total Project Cost	8,600,000,000	8,600,000,000	6,309,260,000

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
20-Dec-2016	27-Jan-2017		31-Jul-2021	31-Jul-2021

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Highly Satisfactory	Satisfactory	High



RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US\$M)
01	26-Mar-2017	Satisfactory	Satisfactory	271.00
02	06-Nov-2017	Satisfactory	Satisfactory	1079.33
03	22-May-2018	Satisfactory	Satisfactory	1379.50
04	03-Dec-2018	Satisfactory	Satisfactory	1379.50
05	04-Jun-2019	Satisfactory	Satisfactory	1379.50
06	19-Dec-2019	Satisfactory	Satisfactory	1379.50
07	16-Jun-2020	Satisfactory	Satisfactory	1379.50
08	09-Feb-2021	Satisfactory	Satisfactory	1379.50

SECTORS AND THEMES

Sectors

Major Sector/Sector (%)

Energy and Extractives 100

Oil and Gas 100

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3) (%)

Private Sector Development 100

Public Private Partnerships 100

Regional Integration 100

Environment and Natural Resource Management 100

Energy 100

Access to Energy 100



ADM STAFF

Role	At Approval	At ICR
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SECTION I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

CONTEXT

1. **The *Trans-Anatolian Natural Gas Pipeline (TANAP)*, which crosses Turkey from East to West, is a critical part of the *Southern Gas Corridor* program of gas production development and transmission.** The term Southern Gas Corridor is used to describe the regionally and strategically important set of infrastructure projects aimed at improving the security and diversity of the energy supply of Turkey and the European Union (EU) by bringing natural gas from the Caspian region to Europe.

2. **Specifically, the Southern Gas Corridor includes upstream gas development as well as three gas pipelines stretching 3,400 km from Azerbaijan through Georgia, Turkey, Greece, Albania, and beneath the Adriatic sea to Italy:**

- In terms of gas development, the Southern Gas Corridor involves the full-field development of Shah Deniz gas-condensate field (“Shah Deniz Stage 2”, or SD2);
- Upstream of TANAP, the Southern Gas Corridor involves the expansion of the South Caucasus Pipeline (SCPx; 692 km) to transport gas from the Shah Deniz 2 field (SD2) across Azerbaijan and Georgia to the Turkish border;
- The newly constructed TANAP (1,811 km), to transport SD2 gas across Turkey to Greece (with two gas offtake points in Turkey); and
- Downstream of TANAP, the Southern Gas Corridor involves the newly constructed Trans Adriatic Pipeline (TAP), to carry SD2 gas through Greece and Albania – with gas offtake points in both countries – and under the Adriatic Sea to Southern Italy.

3. **Downstream, the Southern Gas Corridor connects gas from SD2 through TANAP and TAP to the Italian natural gas network, from which the Italian market and all Italian gas exit points to European destinations can be reached.** This enables the Southern Gas Corridor to provide gas supply from Azerbaijan to Turkey and gas markets throughout South Eastern and Central Europe, and onwards to Western Europe through Italy and Austria.



Figure 1: Map of the TANAP Project and the Southern Gas Corridor



4. **The TANAP Project was at an advanced stage at the time of appraisal of the World Bank loan.** At the time of appraisal, preparation had been going on for almost a decade and most of the main contracts were procured and signed during 2012-16. Substantial construction progress had been made at the time of Board approval.

5. **While Project implementation was already ongoing, the participation of the World Bank added value to the Project in several ways:**

- The World Bank through its due diligence and resulting recommendations informed the application of international best-practice concerning environmental and social issues, including citizen and stakeholder engagement, as well as fiduciary issues, which collectively helped TANAP enhance the quality of implementation of the Project.
- The World Bank acted as a mobilizer and catalyzer of finance from other partners (including MIGA) and the private sector. At the time of appraisal of the World Bank loan, the TANAP Project was at its peak of financing needs and securing debt resources had become critical for continuity in implementation. The World Bank and its co-financier AIIB were the first IFIs to provide financing to the Project. This endorsement of the Project's design and implementation arrangements, as well as TANAP's implementation of recommendations from the World Bank's due diligence on technical, environmental, social, and fiduciary issues, helped facilitate subsequent support from other partners. It also strengthened (i) the ongoing collaboration with the European Commission, EBRD, and EIB in the development of the overall Southern Gas Corridor; and (ii) the collaboration



with AIIB in the financing of high priority infrastructure projects in accordance with the Co-Financing Framework Agreement between AIIB and the World Bank.

- The Project contributed to and deepened the country engagements in Turkey and Azerbaijan (see below).

6. **Azerbaijan faced a macroeconomic crisis due to low international energy prices at the time of appraisal, and TANAP's contribution to the growth and diversification of gas exports was appraised as critical for the country's macroeconomic recovery and closer economic integration with Europe.** The period of low international energy prices during 2014-16 had slowed growth from an average of 16 percent per annum during 2002-10 to a contraction by 3.1 percent in 2016 and turned the current account surplus from 28.4 of GDP in 2010 into a deficit of 3.6 percent in 2016. To adjust to lower oil revenues, the central bank first devalued and then floated the exchange rate, and the Government sharply consolidated spending. The commissioning of the Shah Deniz full field development in the Caspian Sea (referred to as "Shah Deniz 2" or SD2) and the diversification of gas export markets through the development of TANAP were seen as critical for macroeconomic stability and economic development, through larger and more diversified gas exports revenues and closer economic integration with Europe. The TANAP Project also provided a platform for the World Bank to engage with Azerbaijan on improving public reporting of extractive industry revenue. In the two years leading up to the TANAP approval, Azerbaijan had been significantly scaling back its financial partnership with the WBG, and the engagement of the World Bank in TANAP allowed for a strengthening of the overall partnership and engagement on issues such as gas sector governance.

7. **For Turkey, being an energy importer, the Project was appraised as critical to energy supply security and macroeconomic stability.** At the time of appraisal, constraints to gas imports and gas market inefficiencies threatened Turkey's energy security and TANAP was an integral component of the World Bank's engagement in gas market reform. Network capacity and storage limitations constrained the flow of gas and also the trading of gas. Turkey's gas storage capacity of 2.6 billion cubic meters constituted only 5 percent of annual gas consumption (compared to 20-30 percent in large European countries), insufficient to cover demand spikes. These constraints in the gas market and infrastructure prevented Turkey from achieving gas supply security at a reasonable price and affected the security of electricity supply as gas-fired power generation accounted for about 40 percent of the total electricity generation. It was anticipated that in the absence of secure gas supply, Turkey may be macro-economically vulnerable to energy supply shocks and, to mitigate such risks, increase its reliance on lignite power generation. Further, because the TANAP project was designed to traverse the whole of Turkey, there were significant cultural heritage issues that needed to be navigated. Any pipeline project in Turkey would increase the possibility of archeological sites being discovered (as proved to be the case) and, therefore, stronger measures were needed to be put in place to mitigate any risks. The Government of Turkey welcomed the World Bank's global expertise in this regard.

8. **Due to its contribution to South-East Europe's energy supply security, the Project represented a major infrastructure priority to the EU at the time of appraisal.** EU gas imports stood at about two-thirds of consumption at the time of appraisal, mostly coming from Norway and Russia. EU gas production was on a declining trajectory at the time of appraisal, which was projected to continue. At the same time, EU gas demand was projected to increase through at least 2030 in all three scenarios in the International Energy Agency's World Energy Outlook 2015. Political agreement on the Southern Gas Corridor followed in May 2009 at the Southern Corridor Summit in Prague where a declaration was signed by the Presidents



of the European Council and the European Commission for the EU, the Presidents of Azerbaijan, Georgia, and Turkey, and the Energy Minister of Egypt, in the presence of the representatives of Kazakhstan, Turkmenistan, and Uzbekistan. The European Commission reiterated the high priority of the Southern Gas Corridor in the 2014 “European Energy Security Strategy” and the 2015 “Energy Union Package — A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy”.

9. **The assessment during appraisal of the World Bank loan concluded that the Project would not materially increase or decrease greenhouse gas (GHG) emissions from gas consumption in Europe or Turkey, while GHG emissions from operations were assessed to be lower than from alternative import options.** The supply of gas from Azerbaijan through the TANAP pipeline was expected to result in zero net GHG emissions in Europe and Turkey, because without the development of the Southern Gas Corridor Program, Turkey and Europe were assessed as likely to import similar quantities of natural gas from other sources. Total emissions from importing through the Southern Gas Corridor were assessed to be substantially lower than in the case of importing as liquefied natural gas (LNG), as liquefaction plants would consume about six percent of the raw gas to turn it into LNG, or from Russia, given the much longer gas transmission distances from the gas production sites to Southern Europe and Turkey.

10. **TANAP’s shareholders pursued shareholder finance instead of project finance to reduce time requirements, risk of implementation delays, complexity, and the cost of financing.** Further, in Azerbaijan, the macroeconomic conditions had added pressure on public expenditures to satisfy competing priorities between social programs, priority infrastructure projects and other economic activities. World Bank and other IFI financing for SGC alleviated pressure on the Government budget to allocate funds for the Southern Gas Corridor. The choice of shareholder finance was assessed by the World Bank at appraisal as justified because of the strategic nature and complexity of the Southern Gas Corridor program, the complex interlinkages between the pipeline segments, and the potential ripple effects of implementation delays in any of its constituent projects.

11. **The task for implementation and operation of TANAP was given to *TANAP Doğalgaz İletim Anonim Şirketi* (TANAP Natural Gas Transmission Company, or TANAP), a special purpose private company established in December 2012.** TANAP was incorporated under the Turkish Commercial Code to implement the Project and own and operate it upon its completion. Each shareholder in TANAP at the time of appraisal was responsible for its share of the Project’s cost¹: the Southern Gas Corridor Closed Joint Stock Company (SGC)² (58 percent), BOTAŞ (30 percent), and BP (12 percent). The Project cost estimate at the time of appraisal of US\$8.6 billion included a conservative US\$1.4 billion as a contingency provision.

12. **The involvement of the WBG helped mobilized other IFI support,** including the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD), and the Asian Infrastructure Investment Bank (AIIB). At the time of appraisal of the World Bank loan, MIGA was considering a guarantee of up to US\$950 million of loans to support SGC’s commercial borrowings.

¹ With the exception of 5 percentage points of BOTAS’ share, which was financed by SGC.

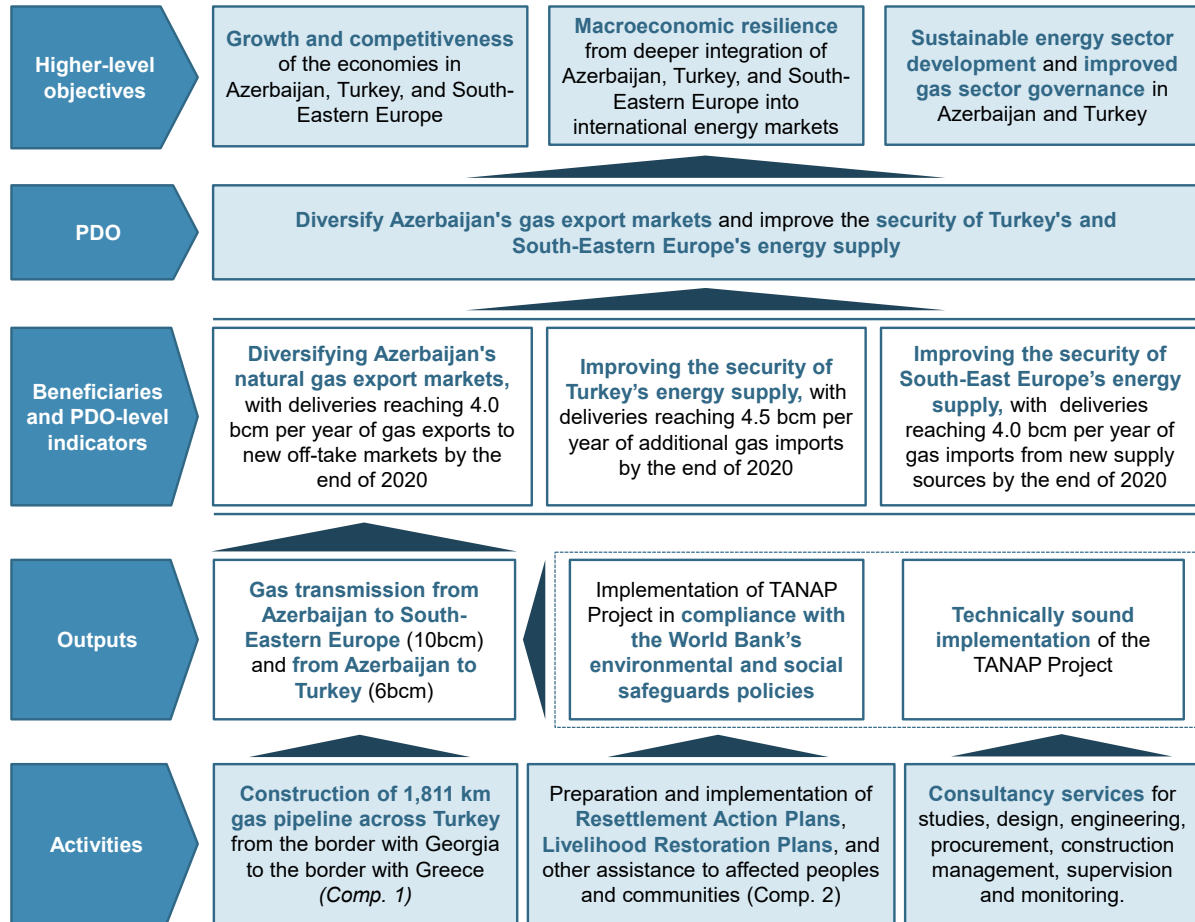
² SGC CJSC was established by the Presidential Decree No. 287 dated 25 February 2014. It was incorporated on 31 March 2014 in accordance with Azerbaijani legislation. 51 percent of the company is owned by the Republic of Azerbaijan, represented by the Ministry of Economy, and 49 percent by the State Oil Company of Azerbaijan (SOCAR). In 2018, share distribution was revised as Southern Gas Corridor Closed Joint Stock Company (SGC) (51 percent), SOCAR Turkey Enerji A.S. (STEAS) (7 percent).



THEORY OF CHANGE (RESULTS CHAIN)

13. The theory of change of the Project is visualized in Figure 2 below.

Figure 2: Theory of Change of TANAP Project



Source: The World Bank.



PROJECT DEVELOPMENT OBJECTIVE (PDO)

14. **The Project's Development Objective** was to diversify Azerbaijan's gas export markets and improve the security of Turkey's and South-East Europe's energy supply.

KEY EXPECTED OUTCOMES AND OUTCOME INDICATORS

15. **The expected outcomes and the associated indicators were:**

- **Outcome 1 / PDO Indicator 1:** *Diversifying Azerbaijan's natural gas export markets*, with a target of 4.0 bcm per year of gas exports to new off-take markets expected by the end of 2020. This indicator counted only Azerbaijan's exports to Europe as Turkey was already importing gas from Azerbaijan through the Baku-Tbilisi-Erzurum Natural Gas Pipeline.
- **Outcome 2 /PDO Indicator 2:** *Improving the security of Turkey's energy supply*, with a target of 4.5 bcm per year of additional gas imports expected by the end of 2020.
- **Outcome 3 /PDO Indicator 3:** *Improving the security of South-East Europe's energy supply*, with a target of 4.0 bcm per year of gas imports from new supply sources by the end of 2020. This indicator was designed to be the mirror indicator of PDO Indicator 1, measuring South-East Europe's gas imports from a new source, Azerbaijan.

All three PDO indicators are measure actual natural gas deliveries, rather than the transmission capacity of the system.

16. **Besides the main target values referred to the in results framework of the PAD (which are listed above), target trajectories of increasing gas deliveries were presented in the PAD for the years 2018-2022.** The trajectories are presented in Table 1 below. The evaluation of the Project's efficacy in Section II will evaluate the achievement of the results against the full trajectories.

Table 1: Planned Values for PDO-level Indicators

	2018	2019	2020	2021	2022
Target values in PAD					
Diversifying Azerbaijan's Gas Export Markets (bcm/annum)	0.0	0.0	4.0	7.0	10.0
Improving the Security of Turkey's Energy Supply (bcm/annum)	1.0	2.5	4.5	5.0	5.5
Improving the Security of South-East Europe's Energy Supply (bcm/annum)	0.0	0.0	4.0	7.0	10.0

Source: Project Appraisal Document (PAD).

COMPONENTS

17. **The overall TANAP Project included the following Components:**

- **Component 1** financed the construction of a 1,811³ km pipeline beginning at Turkey's border with Georgia and ending at Turkey's border with Greece, as well as associated

³ At appraisal, the estimate was 1,850 km.



control systems.⁴ The Component also financed the construction of connection points to the Turkish natural gas network in two locations, at Eskişehir and Thrace, for the delivery of 5.7⁵ bcm p.a. for the Turkish gas market. The financed pipeline infrastructure and associated control systems included (i) four on-land pipeline lots as well as the offshore pipeline lot⁶; compressor stations and metering stations; (ii) pig launchers, receiving facilities, and block valve stations (BVS); (iii) the supervisory control and data acquisition (SCADA) system; and (iv) the main control center (MCC). The pipeline up to Eskişehir has a diameter of 56 inches; from Eskişehir to the Greek border the diameter is 48 inches except for two parallel 36-inch pipelines for the 18.7 km section crossing the Marmara Sea.

- **Component 2 financed land acquisition-related costs (financed from Borrower's resources, as discussed below)**, covering: (a) cash compensation for private land acquisition (i.e., compensation for permanent, exclusive, and temporary land rights; damages to crops and assets; and legal administrative expenses); (b) other assistance such as the implementation of livelihood restoration plans and payments under the Resettlement Action Plan (RAP) Fund to assist affected informal land users, settlers and other expenses for payment of costs not payable under the Turkish law, but required to meet Operational Policy (OP) 4.12 provisions; (c) expenses for the forestry lands (i.e. entry costs and annual leases); and (d) design, implementation and monitoring of RAPs. Land acquisition-related costs were met from the Borrower's resources.
- **Component 3 financed consulting services** for studies, design, engineering, procurement, construction management, supervision, and monitoring.

18. **The World Bank-approved loans and joint co-financing by AIIB supported Components 1 and 3.** BOTAŞ (IBRD 8681-7E) and SGC (IBRD 8679-7E) were the Borrowers of Bank loans of US\$400 million each. AIIB co-financed the World Bank loans with a US\$600 million sovereign loan to SGC (joint co-financing; approved December 21, 2016; Project Number 000011). The remaining US\$7.2 billion were to be financed by commercial and international financial institutions (IFIs).

19. **The Project was designed to allow for further expansion.** TANAP and TAP pipelines are designed to be expandable to 31 bcm p.a. and 24 p.a., respectively. With the addition of compressor stations, transit to Europe could double to 20 bcm p.a. and offtake by Turkey could potentially increase to 11 bcm p.a. (or a higher volume of gas could be delivered to the Turkish market with less transit). This potential future project phase would have a relatively low incremental investment requirement (mainly compressor stations), which would enable a substantial reduction in transmission charges.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

20. There were no project restructurings or other substantial changes to the Project compared to the design at appraisal.

⁴ The entry point at the Georgian border is in the Turkish village of Türkgözü in the Posof district of Ardahan province. The ending point at the Greek border is in the Turkish village of Sarıcaali in the İpsala district of Edirne province.

⁵ At the time of appraisal, the estimate was 6 bcm p.a..

⁶ Lots 1-3 and associated stations and equipment are referred to as "Phase 0" and connect SD2 to the Turkish network. Lot 4 and the offshore pipeline and associated stations and equipment are referred to as "Phase 1" and connect SD2 to TAP.



SECTION II. OUTCOME

A. RELEVANCE OF PDO

ASSESSMENT OF RELEVANCE OF PDO AND RATING

21. **The diversification of Azerbaijan’s gas exports continues to be aligned with Azerbaijan’s Country Partnership Framework (CPF) for FY16-20⁷, which remains the latest CPF for the country at the time of the ICR, as it was during appraisal.** TANAP and the Southern Gas Corridor Program are aligned with CPF Focus Area 2 (“Economic Competitiveness”) as they integrate Azerbaijan with regional and European energy markets, strengthen its connectivity and transit role, and increase its exports. The Project is also aligned with CPF Focus Area 1 (“Public Sector Management and Service Delivery”) through support for improving reporting on extractives industry revenue and the use of funds (see Section III B for details). However, mainstreaming of Extractives Industries Transparency Initiative (EITI)-compliant reporting into Azerbaijan’s country systems, which was part of the Project’s stated commitments in the PAD and would have represented an even closer alignment to CPF Focus Area 1, was no longer part of the Project at the time of the ICR due to Azerbaijan’s withdrawal from its EITI candidate status in 2017. However, it is noteworthy that Azerbaijan continued reporting on extractives industry revenue and the use of funds and the World Bank continued supporting Azerbaijan’s improvements in its reporting, including the launch of a reporting platform in October 2021.

22. **Improving Turkey’s energy security remains fully aligned with Turkey’s Country Partnership Framework (CPF) FY18-21⁸.** The PDO is fully aligned to Focus Area 3 (Sustainability), which aims to address the challenge of reorienting growth towards a more green, resilient and sustainable pattern. Specifically, the PDO is aligned with the achievement of Objective 7 (Improved reliability of energy supply and generation of green energy), which targets increased gas imports through TANAP (from 0 bcm p.a. in 2016 to 5 bcm p.a. in 2021, in line with the appraisal estimates).

23. **While the landscape of EU energy and climate policy has changed substantially in the time between appraisal and ICR, the PDO of improving South-East Europe’s energy security and Project’s approach of achieving energy security through the integration of energy markets remain fully aligned with the European Commission’s strategy of the clean energy transition.** In 2019, the European Commission initiated the European Green Deal, which aims to transform the EU into a modern, resource-efficient and competitive economy, ensuring (i) the reduction of the EU’s net greenhouse gas emissions by at least 55 percent by 2030, compared to 1990 levels, and no net emissions of greenhouse gases by 2050; (ii) economic growth decoupled from resource use; and (iii) no person and no place left behind. Stakeholders hold widely diverging views on the role of natural gas in the achievement of the European Green Deal, and any new project aiming to improve the security of South-East Europe’s energy supply would have to justify its theory of change much more rigorously, including the choice of energy source and its economic and GHG emissions profiles. However, “Ensuring a secure and affordable EU energy supply” and “developing a fully integrated, interconnected, and digitalized EU energy market” are two of the three key principles for the clean energy transition under the European Green Deal. Therefore, the

⁷ <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/748271467998502035/azerbaijan-country-partnership-framework-for-the-period-fy2016-20>.

⁸ <https://documents1.worldbank.org/curated/en/585411504231252220/pdf/Turkey-CPF-08072017.pdf>.



PDO of improving the security of energy supply can be considered relevant for South-East Europe at the time of ICR.

24. **In conclusion, the relevance of the PDO at the time of ICR, which is thus assessed as Substantial,** because of (i) the continued relevance for one Focus Area of the Azerbaijan CPF; (ii) the continued relevance for the Turkey CPF; and (iii) the developments in the European and international energy markets between appraisal and closure of the Project. The Project's relatively weaker alignment with CPF Focus Area 1 of Azerbaijan's CPF discussed above and the changing strategic context in South-East Europe as a result of the European Green Deal are assessed as only moderate shortcomings.

B. ACHIEVEMENT OF PDO (EFFICACY)

ASSESSMENT OF ACHIEVEMENT OF EACH OBJECTIVE/OUTCOME

25. **The three outcomes of the Project are assessed using the three PDO-level indicators** because these are considered adequate measures of the Project's contributions to diversifying Azerbaijan's gas export markets and improving the security of Turkey's and South-East Europe's energy supply.

26. All three anticipated outcomes of the Project were **fully achieved by the time of the Project's closure**. There were small delays compared to the original target trajectories of the three indicators presented in Table 1 above, but the Project had caught up with the trajectories by 2021, as shown in Table 2 below and laid out in detail below.

- **Outcome 1 / PDO Indicator 1. Diversifying Azerbaijan's natural gas export markets (Target: 4.0 bcm p.a. by end of 2020): Fully achieved, with minimal delays.** TANAP's gas transmission capacity to South-East Europe was fully established on December 31, 2020⁹ (commercial operation date, or COD), compared to an anticipated date in early 2020. The delays were caused by construction progress on the TAP-side; the TANAP-side of the pipeline was constructed by October 30, 2019¹⁰. Gas deliveries to TAP commenced on December 31, 2020, and reached a level of 6.2 bcm p.a. (annualized) in January 2021 (immediately surpassing the target value of 4.0 bcm p.a.). At the time of ICR, the annualized average deliveries over the four preceding months were 9.4 bcm p.a. The plateau period¹¹ is expected to commence on January 1, 2022, as planned at the time of appraisal, and with 10.5 bcm p.a. at a higher level than the 10.0 bcm p.a. estimated in the PAD. As of September 30, 2021, a cumulative total of 5.57 bcm p.a. of gas has been exported from Azerbaijan to new natural gas export markets in South-East Europe. The cumulative total crossed the value of 4.0 bcm p.a. in late July 2021, a few days before the Project's closure, compared to the date of December 31, 2020, targeted at appraisal. A

⁹ Completion of corrective works to address warranty defects continued beyond COD and, as of August 31, 2021, stood at 99.94 percent for Phase 1.

¹⁰ Although, commercial operations was not started, AGSC paid monthly capacity charge to TANAP from July 1, 2020 till December 31, 2020.

¹¹ The value of 10.5 bcm p.a. is based on the contractual volume as per TANAP's agreements with the companies off-taking gas deliveries through TAP, which had not been finalized at the time of appraisal. The Project Appraisal Document had referred to 10 bcm as plateau gas delivery based on concept documents provided by the Borrowers as an approximate volume to be delivered to Turkey. The figure of 10.5 bcm p.a. assumes pipeline availability of 95.9 percent. Current pipeline availability is near-100 percent.



detailed comparison of planned and actual gas delivery values is presented in Table 2 below.

Outcome 1 / PDO Indicator 1 did not have intermediate results indicators directly associated with it.

- **Outcome 2 / PDO Indicator 2. Improving the security of Turkey's energy supply (Target: 4.5 bcm p.a. by end of 2020): Fully achieved, without delays.** TANAP's gas transmission capacity to Turkey was fully established on June 30, 2018 (COD¹²), as planned, and reached a level of 4.5 bcm p.a. (annualized) in July 2020 (total deliveries for 2020 were 4.7 bcm). The plateau of gas deliveries of a minimum of 5.7 bcm p.a.¹³ was reached in July 2020, a bit earlier than planned at the time of appraisal, and at a higher level than the foreseen 5.4 bcm p.a. As of September 30, 2021, a cumulative total of 12.57 bcm p.a. has been delivered to Turkey. The cumulative total crossed the value of 8.0 bcm p.a. by mid-December 2020, compared to the date of December 31, 2020, targeted at appraisal. A detailed comparison of planned and actual gas delivery values is presented in Table 2 below.

Outcome 2 / PDO Indicator 2 also had two intermediate results indicators directly associated with it, both of which were overachieved. The availability of TANAP gas supply to Turkey (*Intermediate Results Indicator 1*) reached 5.7 bcm p.a. compared to a target of 5.4 bcm p.a. by the end of 2020. The number of Turkish gas consumers benefitting from gas supply (*Intermediate Results Indicator 2*) reached 17.5 million by the end of 2020, compared to a target of 15 million.

- **Outcome 3 / PDO Indicator 3. Improving the security of South-East Europe's energy supply (Target: 4.0 bcm p.a. by end of 2020): Fully achieved, with minimal delays.** This indicator was designed to be the mirror indicator of PDO Indicator 1, measuring South-East Europe's gas imports from a new source, Azerbaijan. See above for a discussion of the level and timing of achievement.

Outcome 3 / PDO Indicator 3 did not have intermediate results indicators directly associated with it.

¹² Completion of corrective works to address warranty defects continued beyond COD and, as of August 31, 2021, stood at 97.03 percent for Phase 1.

¹³ The value of 5.7 bcm p.a. is based on the contractual volume as per TANAP's agreements with BOTAS, which had not been finalized at the time of appraisal. The Project Appraisal Document had referred to 6 bcm as plateau gas delivery based on concept documents provided by the Borrowers as an approximate volume to be delivered to Turkey. The figure of 5.7 bcm p.a. assumes pipeline availability of 95.9 percent. Current pipeline availability is near-100 percent.



Table 2: Actual and Planned Values for PDO-level Indicators

	2018	2019	2020	2021	2022
Target values in PAD					
Diversifying Azerbaijan's Gas Export Markets (bcm/annum)	0.0	0.0	4.0	7.0	10.0
Improving the Security of Turkey's Energy Supply (bcm/annum)	1.0	2.5	4.5	5.0	5.5
Improving the Security of South-East Europe's Energy Supply (bcm/annum)	0.0	0.0	4.0	7.0	10.0
Actual					
Diversifying Azerbaijan's Gas Export Markets (bcm/annum)	0.0	0.0	0.1	7.4 ¹	10.5*
Improving the Security of Turkey's Energy Supply (bcm/annum)	0.8	2.8	4.7	5.7 ¹	5.7*
Improving the Security of South-East Europe's Energy Supply (bcm/annum)	0.0	0.0	0.1	7.4 ¹	10.5*

Source: PAD; TANAP. *2022 data are projections.

Note: ¹Conservative estimate, assuming deliveries during October-December 2021 remain at an average level of January-September 2021.

27. **The remaining intermediate results indicators were related to social impacts, grievances, consultations and employment of women and all but one were either successfully met or exceeded the end-term targets.** The one intermediate results indicator that was not fully met at the time of the ICR was the registration of affected land parcels, which stood at 99.62 percent as of December 6, 2021, compared to a target of 100 percent. See Annex 1 and Section IV B below for details.

28. **Other outcomes and impacts not captured in the results framework are discussed in Section II.E,** including private-capital mobilization, improved environmental and social risk management, improved fiduciary risk management, and the mitigation of risks related to cultural heritage.

JUSTIFICATION OF OVERALL EFFICACY RATING

29. The overall efficacy is rated **High**, as there were **no shortcomings** in the achievement of the expected outcomes, and all three results indicators and the two outcome-related intermediate results indicators were fully achieved or overachieved, with minimal delays.

C. EFFICIENCY

ASSESSMENT OF EFFICIENCY AND RATING

30. **The above-mentioned outcomes were achieved at a total cost of US\$6.3 billion, a substantially lower cost than the appraised estimate of US\$8.6 billion (27 percent savings).** The cost estimate at the time of appraisal of the World Bank loan (US\$8.6 billion) included a conservative US\$1.4 billion as a contingency provision. Another US\$0.9 billion were saved compared to the estimate at the time of appraisal of the World Bank loan as a result of highly cost-efficient implementation. The main drivers of the cost savings and the World Bank's contribution are discussed in detail in Section III B below.

31. **The results were achieved with only minor delays, which were due to delays in TAP construction and thus outside of the control of the Project and not assessed as a sign of inefficiency in the**



extraordinary context of the COVID-19 pandemic. See Section II B above for details on the timeline of achievement of the results of the Project.

32. **Taking into account the cost savings realized during procurement and the timeline of the actual ramp-up of gas deliveries, the Project's ERR is assessed at ICR at 12.37 percent, compared to 10 percent at appraisal.** The corresponding NPV, at a 6 percent discount rate, was assessed as US\$3.94 billion, compared to the estimate of US\$2.56 billion at appraisal.

33. Because of the savings and only minimal delays in gas deliveries due to delays in TAP construction (and thus outside of the control of TANAP), efficiency is assessed as **High** as it exceeds expectations when comparing TANAP to similarly large and complex infrastructure projects.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

34. The overall outcome rating is **Highly Satisfactory**, as a result of the three constituent ratings being rated **Substantial**, **High**, and **High**, reflecting only moderate shortcomings in relevance and minor shortcomings in efficacy and efficiency. Besides the linear combination of constituent ratings, the rating is justified by the performance of the Project in terms of budget and timeline, which is considered exceptional when compared to similarly large and complex infrastructure projects.

E. OTHER OUTCOMES AND IMPACTS

INSTITUTIONAL STRENGTHENING

35. **In Azerbaijan, the Project supported the Government in improving its reporting on extractives industry revenue and use of funds.** The Project's appraised contribution to the mainstreaming of transparent extractives industry reporting into country systems faced a setback from Azerbaijan's withdrawal from its EITI candidate status soon after Board approval of the Project (see Section III B below). However, the World Bank continued supporting Azerbaijan's improvements in its reporting on extractives industry revenue and the use of funds, including the launch of a reporting platform in October 2021.¹⁴

36. **The Project strengthened the capacity of TANAP for pipeline operations and the management of any future investment activities.** As a result of the engagement with the World Bank and other IFIs, over the course of project implementation TANAP built up state-of-the-art capacity on pipeline operations, including environmental and social issues. TANAP is now well-positioned to manage operations of the infrastructure over its lifetime, as evidenced by the successful operation of the pipeline since the start of gas deliveries in 2018. The most important areas of institutional strengthening included environmental and social risk management, the mitigation of risks relating to cultural heritage, and fiduciary risk management, which are discussed in detail in the respective sections below.

GENDER

37. **The Project made substantial efforts to consult female beneficiaries and affected people, and increase employment of female workers by contractors.** TANAP carried out separate consultations for women in their own dwellings (40 percent or 235 out of a total of 585 consultations). Even though most of the impacted land-owners are men, through these consultations affected women were informed about

¹⁴ <https://azstat.org/HSSP/faces/main.xhtml>.



the Project, land acquisition procedures, its benefits, local employment opportunities, safety trainings, and its planned social investment program. Among the affected communities (mostly in rural settlements), TANAP has provided local employment opportunities through its contractors for unskilled women to be able to earn additional income for their households. The share of female workers fluctuated between 5 percent and 13 percent during implementation, compared to a target of 5 percent. At the time of Project closure, the share of female employees among contracts stood at 11 percent, which was more than double the Project target of 5 percent because by this time most construction firms (which have lower shares of female workers) had already demobilized. During peak construction, the share of female workers stood at 6 percent in April 2018.

38. Gender-disaggregated data was collected at all levels for analytical purposes together with the aim of having a gender-inclusive design of future projects (in social investment program) and informing also TANAP and BOTAŞ for their operations. The Project gathered data on the proportion of women among unskilled and skilled labor hired in the entire Project. Regarding land and compensation issues, although the Turkish law has gender-neutral provisions for land-owners, men are more often titleholders than women in Turkey. In line with the Resettlement Action Plans (RAPs), the Project ensured that women-land-owners or users affected under the Project receive a fair amount of compensation that covers what they are entitled to. Lastly, the Project paid specific attention to (i) having gender-specific investments under the social investment program; and (ii) setting up feedback mechanisms in the four lots during the construction and operations phase of the Project that they are equally accessible to both women and men (see Section IV B for details on the GRM and appeals committees).

MOBILIZATION OF PRIVATE SECTOR FINANCING

39. TANAP's shareholders were able to raise US\$1,159 million in commercial financing (18.4 percent of project financing), facilitated in part by the World Bank's involvement in the Project. In June 2018, MIGA issued a non-honoring sub-sovereign guarantee covering US\$1.1 billion in non-shareholder loans from seven lender banks — AKA Bank, Citi, Credit Agricole CIB, ING, LBBW, Santander, and Société Générale — to SGC CJSC to finance its share of TANAP (MIGA Project ID 13661). A total of US\$159 million of these loans were disbursed. However, the loan principal was fully prepaid and the remaining loan funds were cancelled due to savings in the Project, and MIGA's guarantee was terminated in September 2019. In addition, US\$1 billion in Eurobonds were raised by SGC to cover the Borrowers' contribution to the cost of the Project. Applying the principle of Mobilizing Financing for Development (MFD), the World Bank Project was designed to mobilize private capital, and the World Bank collaborated with interested commercial financiers and facilitated, among others, participation by lenders in World Bank missions. The World Bank's engagement on fiduciary oversight and environmental and social (E&S) risk management directly contributed to the success in raising commercial financing as it was a factor in the commercial financiers' due diligence.

POVERTY REDUCTION AND SHARED PROSPERITY

40. Natural gas customers in Turkey and South-East Europe are being much less impacted by the spike in natural gas prices at the time of the ICR as a result of more diversified piped gas imports. At the time of the ICR, energy commodity prices have reached unprecedented high levels across Europe and Central Asia. Gas benchmark prices in October 2021 across Europe were on average almost four times more expensive than in April 2021. Power prices in Europe had increased by 200 percent, driven mainly by the increase in gas prices. While various factors have contributed to the high energy prices, the main



driver is the surge in the price of natural gas. This price surge has been mainly caused by a tight global liquefied natural gas (LNG) market. The Rotterdam LNG benchmark price is up by 435 percent as of October 22, 2021, compared to the beginning of 2021. Countries in which imports are mainly from piped gas from diverse sources, including from TANAP, and where retail prices are less directly linked to LNG benchmarks, are less severely affected by the price hike. In South-East Europe, gas wholesale prices in Greece, Bulgaria, and Romania changed by +11 percent, +159 percent and -41 percent, respectively, between 2019-21, compared to +559 percent in Germany and +429 percent on average in the EU. BOTAS' wholesale gas purchasing costs are not known, but the relatively small price increase passed on in October 2021 for industrial consumers and power generators (15 percent) suggests that Turkey, too, was much less affected by increases in natural gas prices than the rest of Europe.

OTHER UNINTENDED OUTCOMES AND IMPACTS

41. **The Project paved the way for a much deeper World Bank engagement in Azerbaijan under the Country Partnership Framework (CPF) for Azerbaijan for FY16-20.** The World Bank's readiness to engage on a Project of this scale, national importance, and international visibility demonstrated in several ways the value-add of the World Bank to middle-income countries, thereby providing a platform for deeper engagement with the Government of Azerbaijan:

- Acting as a bridge between the public and private sectors.
- Convening stakeholders around common development objectives and helping the government navigate policy trade-offs.
- Acting as mobilizer and catalyzer of finance from other IFIs and partners.
- Being a knowledge partner to share international best practices in complex projects with regards to technical project design and technical decisions during implementation, environmental and social issues including gender and citizen and stakeholder engagement, as well as fiduciary risk management.

42. **Biodiversity research.** Twelve new species (nine fauna and three flora) were discovered during project preparation and implementation, 10 during TANAP's Environmental and Social Impact Assessment (ESIA) and 2 during the biodiversity monitoring studies carried out by TANAP in 2019.¹⁵ Additional detailed studies concluded recently that one of those was determined to be endemic to Northeastern Anatolia and has since been registered under the name of *Tipula tanap* in honor of the Project. Further studies also concluded that another discovery belongs to an entirely new genus that is now known as *Tanap cinar*. Both new species discoveries were publicized in scientific journals.¹⁶ These findings are testimony to the rigor of TANAPs' ESIA process.

¹⁵ Among the new arthropods discovered were three dance flies (*Hilara ardahanensis*, *Hilara elifae*, *Hilara hasbenlii*) and two new crane flies (*Tipula tanap* and *Tanap cinar*). The latter represents an entirely new genus in the Tipulidae family of insects, which now bear the name of TANAP. The crane fly, sometimes referred to as a mosquito hawk or daddy longlegs, is a common insect in the tipulidae superfamily of flies, which contains more than 15,000 species. *Tipula tanap*, according to entries in several scientific journals, is distinguished from other species in its family by a projection just behind the base of the antenna. The plants discovered include *Verbascum ekicii*, *Astragalus askaleensis* and *Dianthus dumanii*. *Verbascum ekicii* was discovered during a field trip to collect plant materials along the route of TANAP during the ESIA process, in the Bursa province.

¹⁶ <https://www.tanap.com/store/file/common/606e6f1c3e2616c87171f36af0bbb90d.pdf>.



43. **Chance-finds of cultural heritage artifacts.** TANAP engaged archaeologists in the ESIA process and worked closely with the Museum Directorates of Turkey's Ministry of Culture and Tourism to establish procedures applicable in the case of chance finds. During the ESIA baseline studies, a total of 106 archeological or cultural heritage sites were discovered. During construction, TANAP discovered an additional 48 chance finds beyond the sites identified during the ESIA, arriving at a total of 154 archeological or cultural heritage sites found. In total, more than 1,000 archeological objects were unearthed during construction. TANAP sent these valuable cultural finds to museums for display, dating, and further research. For example, a chance find occurred in 2017 at Alaybeyi near Erzurum (Lot 1). The Alaybeyi site discovered artifacts are assessed to date between 4,720 and 4,553 BCE. The Bandirma Museum opened a new exhibition hall specifically to showcase the findings from the Project. TANAP released three books compiling the scientific articles published on the archeological finds during the excavations.



SECTION III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

44. **The following aspects of the Project's design contributed to the full achievement of expected outcomes:**

- The Project had a **simple design, clearly structured around one infrastructure project and the associated activities;**
- **PDO-level indicators were ambitious but realistically achievable,** and the results framework was well aligned with the main Project activities;
- The **Project's implementation structure ensured professionally managed implementation** (by the project company TANAP) **while adequately representing the two governments** and other shareholders.
- The Project benefited from **sophisticated entities managing the implementation of the upstream and downstream facilities under the overall Southern Gas Corridor,** which were able to complete their parts of the infrastructure on schedule or close to schedule, allowing the Project's objectives to be fully achieved by the closing date.
- **Achievement of the PDO critically depended on interfaces with the other parts of the Southern Gas Corridor, which were well managed.** Besides the day-to-day technical-level coordination between the entities implementing the different parts of the Southern Gas Corridor program, the interfaces between the projects were managed on a political level through, among others, an Advisory Council on the Southern Gas Corridor that was set up as a joint initiative of the European Commission and Azerbaijan, bringing together all the countries and stakeholders.

45. **Further, the Project was fully ready for implementation:**

- **The Project's legal basis for implementation and operation was completed well before the appraisal.** An MOU between the Government of the Republic of Turkey, the Government of the Republic of Azerbaijan, and SOCAR had been signed on December 24, 2011, initiating the TANAP Project, with an authorization given for the design, construction and subsequent operation of the pipeline. The "Intergovernmental Agreement concerning the Trans-Anatolian Natural Gas Pipeline System between the Government of the Republic of Turkey and the Government of the Republic of Azerbaijan" and the "Host Government Agreement" which constitute the legal basis of the project, were signed on June 26, 2012, and amended on May 26, 2014. The revised agreement was duly ratified by the Grand National Assembly of Turkey on September 10, 2014.
- **At the time of appraisal, most of the major contracts had been awarded.** At the time of appraisal, preparation had been going on for almost a decade and most of the main contracts were procured and signed during 2012-16. The Bank assessed the Bank-financed contracts and their procurement during appraisal and confirmed compliance with principles of the World Bank's Procurement Regulations and the Anticorruption Guidelines and Sanctions Framework.



- **Construction had already begun at the time of appraisal.** Substantial progress had been made already at the time of Board approval. IBRD 8681-7E and IBRD 8679-7E provided restorative financing in the amounts of US\$237 million (59 percent) and US\$240 million (60 percent), respectively.

B. KEY FACTORS DURING IMPLEMENTATION

Effectiveness

46. **The World Bank loan became fully effective within 44 days, and AIIB's loan soon after.** Following Board Approval on December 20, 2016, the legal agreements for the loan to BOTAŞ were signed on December 26, 2016, and evidence of compliance with effectiveness was submitted and the loan was declared effective on February 8, 2017. The loan to SGC was signed on January 16, 2017, and declared effective on January 27, 2017. The legal agreements of co-financier AIIB with SGC were signed on January 26, 2017, and AIIB declared the effectiveness of its loan to SGC on February 20, 2017. The Co-Lenders Agreement between the Bank and AIIB was signed on February 6, 2017.

Implementation Capacity and Commitment

47. **TANAP maintained sufficient human resources and capacity to implement the Project and the Borrowers demonstrated commitment to comply with the Project agreements.** The project management team was developed with a strong HQ managerial setup and field presence. Each lot and major contract had its own Delivery Manager, technical staff and social, environment and OHS team leads to manage those appointed by the contractors. Additionally, design and management resources were provided by a third-party consultant during the early stages of the Project. TANAP responded appropriately to issues on site, adjusting the management structure to improve efficiency and project management. This was done by re-organizing the external consultants and embedding them within TANAP teams. In terms of E&S, TANAP organized its environment, social, and health and safety units into one directorate, with a director reporting directly to TANAP's General Manager. This direct reporting mechanism played a critical role in expediting internal communication and decision making. It enabled urgent messages to reach senior management much faster, more clearly, and more directly. TANAP's ESMS was effective because of strong leadership and senior management support for environmental and social issues and TANAP's highly skilled environmental and social-technical staff with previous experience working on similar pipeline projects.

Financing

48. **The financing required for the Project was fully mobilized from the sovereign, and commercial sources within 18 months of World Bank Board approval:**

- **IFIs:** The World Bank and its co-financier AIIB were the first IFIs to provide financing to the Project. This endorsement of the Project's design and implementation arrangements, as well as TANAP's implementation of recommendations from the World Bank's due diligence on technical, environmental, social, and fiduciary issues, helped facilitate subsequent support from other partners, notably EBRD and EIB. Besides the US\$800 million in World Bank loans, a total of US\$1.39 billion in IFI financing for TANAP was realized between December 2016 and March 2018:



- i. AIIB co-financed the World Bank loans with a US\$600 million sovereign loan to the Republic of Azerbaijan (joint co-financing with World Bank loans; approved December 21, 2016; Project ID 000011).
 - ii. EBRD provided a loan of US\$500 million to SGC (approved October 17, 2017; Project ID 48376).
 - iii. EIB approved a EUR 932 million loan to BOTAS and SGC (US\$1.15 billion; approved on March 18, 2018; Project ID 20150676). However, SGC elected not to borrow from EIB and hence only US\$270 million was raised by BOTAS from EIB.
 - iv. The EU had supported project preparation and implementation activities with several small grants totaling around EUR 15 million¹⁷.
- **Commercial financing:** TANAP's shareholders were able to raise US\$1,159 million in commercial financing benefitting, among others, from the World Bank's collaboration with commercial financiers and its due diligence.
 - i. US\$159 million was mobilized from private-sector bank financing with support from MIGA. See Section II E for details.
 - ii. US\$1,000 million were mobilized from Eurobonds issued by SGC.
 - **Additional non-IFI sovereign financing:** The remaining US\$2.965¹⁸ billion was mobilized by the Borrowers from sovereign and non-sovereign contributions.

49. **Shareholders.** During implementation; SGC sold 7 percent of its shares in TANAP to SOCAR Turkey Enerji A.Ş. The transaction was already anticipated at the time of negotiation of the loan agreement with the Bank and was forthwith duly notified to it. The transaction did not affect project implementation.

Cost-Effectiveness

50. **Even though most major contracts were already procured at the time of appraisal of the World Bank loan, major cost savings compared to appraisal estimates were realized in Component 1.** The cost estimate at the time of appraisal of the World Bank loan (US\$8.6 billion) included a conservative US\$1.4 billion as a contingency provision. Another US\$0.9 billion were saved compared to the estimate at the time of appraisal of the World Bank loan as a result of cost-efficient procurement, efficient contract implementation, sound and timely technical decisions taken during implementation, and favorable market conditions affecting prices of inputs such as steel pipes. The actual aggregated increase in the contract prices due to change orders was only 8.15 percent of the cumulative contract prices and the cumulative amount of contingency used was less than 1 percent of the cumulative contract prices, both of which are small values for a project of this scale. The realized total of Components 2 and 3 was consistent with appraisal estimates (small cost savings in Component 2 were roughly equivalent to cost increases in Component 3; see Annex 3). The high cost-effectiveness of implementation benefited from World Bank inputs during appraisal and implementation on issues related to procurement, technical

¹⁷ In the Financing Table in the upfront matter of this report, this amount is recorded under the Borrower's contribution, to keep the categories consistent with those determined at appraisal.

¹⁸ In the Financing Table in the upfront matter of this report, the Borrower's contribution is recorded as US\$2.98 billion, inclusive of the grant financing received by the project.



decisions taken during implementation, contract management, E&S risk management, and fiduciary risk management.

COVID-19 Pandemic

51. **The COVID-19 pandemic impacted the last stretch of construction activities under the Project's associated facility (TAP) starting in early 2020.** The main impact of the COVID-19 pandemic on the Project was that TAP commissioning was delayed compared to the original schedule, with gas deliveries to TAP starting in late 2020 compared to a planned date at the end of 2019. While this slightly delayed the achievement of PDO-level indicators 1 and 3 compared to the timing anticipated during the preparation of the PAD, they were still both fully achieved by the closing date. As for impacts on TANAP, TANAP put in place COVID-19 prevention measures at its headquarters and field-based offices and updated its Health and Safety Management plan accordingly. A dedicated team comprised of TANAP Senior Management, chaired by the TANAP CEO, was established to monitor developments and introduce mitigation measures as needed per new developments, and Coronavirus Risk Assessment studies were finalized for all TANAP facilities and shared with the related employees.

Withdrawal of EITI Candidacy

52. **Azerbaijan withdrew from the EITI candidacy a few months after appraisal, but the World Bank continued to support Azerbaijan's improvements in its reporting on extractives industry revenue and the use of funds.** Azerbaijan was validated against the 2016 EITI Standard in October 2016. The EITI Board discussed the outcomes of the country validation and came to the decision that Azerbaijan made meaningful progress in implementing the 2016 EITI Standard, with considerable improvements across several individual requirements compared to the first Validation in 2015. However, the EITI Board agreed that Azerbaijan had not made sufficient progress on requirements related to civil society engagement and as a result, the decision was that Azerbaijan retained its candidate status. On March 10, 2017, the Government of Azerbaijan decided to withdraw from the EITI following its suspension from the EITI Board the previous day. This affected the Project's ability to support mainstreaming of EITI-compliant reporting. However, the World Bank continued supporting Azerbaijan's improvements in its reporting on extractives industry revenue and the use of funds, including the launch of a reporting platform in October 2021.¹⁹

SECTION IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E DESIGN

53. **The following factors contributed to a well-designed M&E system:**

- The operation's theory of change was simple and clear, structured around a single infrastructure project.
- The PDO-level indicators adequately reflected the three main outcomes of the Project, and progress on the PDO-level indicators is attributable to the Project activities. Adequate indicators were identified to monitor progress toward the outcomes.

¹⁹ <https://azstat.org/HSSP/faces/main.xhtml>.



- Regular reporting of progress along all aspects of the Project was set up to be done on a monthly basis by TANAP to its shareholders (the Borrowers of the Project) and the World Bank, thus providing timely updates and enabling the World Bank to respond to any issues.
- Given the size of the infrastructure project, third-party monitoring companies were contracted by TANAP to regularly conduct independent environmental and social audits of the project activities.

54. **The only minor shortcomings were that:**

- The Project would have benefited from intermediate results indicators to measure construction progress prior to commissioning of the infrastructure.
- Several results indicators would have benefited from current *and* cumulative measurement as opposed to just current measurement, including the three PDO-level indicators and the intermediate indicator on female employment.

M&E IMPLEMENTATION

55. **M&E implementation without shortcomings.** Data was continuously collected by TANAP, analyzed in a methodologically sound manner, and reported every month to its shareholders and the World Bank. This was possible as a result of TANAP's investment in in-house capacity to monitor a large number of activities going on in parallel (including in E&S), as well as external support from independent monitoring agents (see Section IV B below) and an external engineering, procurement and construction management contractor (EPCM).

56. **Provisions were made for findings from the Project to be disseminated and inform future similar projects,** including through publication of all monitoring and evaluation documents, presentations at industry conferences, and the preparation and publication of a lessons-learned note (see Section V).

M&E UTILIZATION

57. **M&E utilization without shortcomings.** While the Project did not require restructurings or major corrective actions, data on performance and results progress was adequately used by Borrowers and the World Bank to inform project management and decision-making. For example, the close and frequent monitoring of health and safety incident rates informed the World Bank's engagement and recommendations on occupational health and safety (see Section IV B below); the monitoring of progress in RAP implementation informed the World Bank's support on compensation, reinstatement, and livelihood restoration; and monitoring of progress in financing informed the World Bank's engagement with the Borrower's, development partners, and commercial banks.

JUSTIFICATION OF OVERALL RATING OF QUALITY OF M&E

58. M&E quality is assessed as **High** as there were only minor shortcomings in the M&E system's design and no shortcomings in its implementation and utilization.



B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

RAP Implementation

59. **Implementation of Resettlement Action Plans (RAP).** The Project involved about 7000 hectares of land including 4,576 ha of private land acquisition affecting more than 115,000 landowners. OP 4.12-compliant implementation of the RAPs was, therefore, a major focus of the World Bank during implementation. At the time of the ICR, implementation of the Project’s two RAPs²⁰, expropriation processes, and livelihood restoration plans are substantially complete and independently verified. Registration of affected private land parcels (used as an indicator for measuring resettlement implementation progress) stands at 99.55 percent of the 21,279 land parcels (see Table 2 below) as of December 6, 2021. When counting only land required up to commissioning, and thus excluding land acquired for modifications introduced during operations, the percentage of land parcels registered increases to 99.62 percent, which is the value used for evaluation of the Project in the results framework. 100 percent has not been achieved yet due to ongoing non-project related (external) factors such as land consolidation or cadastral renewals.

Table 3: Land Acquisition Progress at the Time of ICR

Project Facility	Private land Area	Private Parcels Affected	Landowners Affected	Private Land Parcels Registered	
	ha	No.	No.	No.	%
Pipelines	4,198.1	18,343	99,780	18,310	99.82
Above-ground installations (including access roads)	249.75	707	3,678	689	97.45
Power lines and others	133.27	2,229	12,241	2,184	97.98
Actual	4,581.12	21,279	115,699	21,183	99.55 (99.62*)

Source: TANAP. *When counting only land required up to commissioning, and thus excluding land acquired for modifications introduced during operations, the percentage of land parcels registered increases to 99.62 percent. This is the value used for the evaluation of the Project in the results framework.

60. **Implementation of Corrective RAP.** At the time of appraisal, a resettlement audit was carried out since RAP implementation was already in progress. As a result of this audit, 15 corrective actions were identified. These related to improvements in entitlement, livelihoods, support to vulnerable people, stakeholder engagement, grievance redress mechanism and institutional strengthening for RAP implementation and all these are now fully implemented. The support under the RAP Fund for those impacts not covered under the national legislation is also completed, with 6,089 people having received support under this fund. Notwithstanding its completion, the fund will remain open if anyone approaches TANAP for support.

²⁰ One for the pipeline (<https://www.tanap.com/store/file/common/e23d13df65a22491fa49ddce8d4bda02.pdf>), and one for the above-ground installations (<https://www.tanap.com/store/file/common/a9f3f23b03d275dc61cba80847d931bf.pdf>).



61. **Livelihood Restoration Plans.** Two livelihood restoration plans — one for fishermen affected by the undersea section²¹ and another for those affected by above-ground installations²² such as access roads — were implemented and about 200 people benefited.

62. **Post-Resettlement Impact Evaluation (see also Annex 7).** In 2021, TANAP conducted a post-resettlement impact evaluation study to assess the outcome of compensation and livelihood assistance received by the affected people and confirm the realization of the objectives set forth in the Resettlement Action Plan (RAP) and its addendum. The study²³ was carried out with help of a team of independent consultants and involved questionnaire telephonic interviews with more than a thousand affected people, 60 Mukhtars as well as detailed field investigations and qualitative interviews. The evaluation confirms the satisfactory implementation of the agreed actions in RAP including addendum and Livelihood Restoration Plans (LRPs), particularly regarding the key commitments related to mandatory compensation payment under Turkish law. In addition, measures identified under the RAP Fund have been delivered to supplement compensation for various impacts that were not addressed by Turkish law to meet the lenders' resettlement policy requirements. The detailed results of the study and recommended follow-up measures are summarized in Annex 7.

63. **In addition, TANAP also established a Social and Environmental Investment Program (SEIP).** To develop a good relationship with surrounding communities and support community development projects along the TANAP route, TANAP launched a Social and Environmental Investment Program (SEIP) in 2015. The objective of the SEIP is to accelerate socio-economic development and protect natural resources along the pipeline route and around AGI construction sites and is part of the benefit-sharing mechanism to support people living on the pipeline route through the implementation of development and welfare schemes. This broadened the scope of TANAP's interventions from risk and impact mitigation measures targeted towards directly affected households to interventions that contributed to the economic and social development of local communities more broadly. It is the largest non-government program implemented in Turkey covering 20 provinces, 67 districts and 600 villages and is being implemented through three funding mechanisms: (i) Direct Grant; (ii) Direct Investment; and (iii) Support to Ongoing Government Programs. In total, TANAP disbursed more than US\$53 million to over 1,000 projects by implementing projects with farmers, cooperatives, unions, municipalities, villages, schools, universities, provincial authorities and NGOs directly or indirectly affected by the pipeline. The investments focused on education, habitat development, beekeeping, poultry farming, improvement to schools, persons with disabilities and electricity production from solar energy and supported ongoing Government programs in the areas of health services, drinking water and vocational training. The SEIP benefited more than 40,000 people, prioritizing vulnerable groups including children, women, physically challenged and farmers to improve their socio-economic well-being. This program will continue during the operations phase. In recognition of the successful implementation of this program and contribution to sustainable development and giving back to the communities, TANAP has received nine international awards including International CSR Excellence Award, UK; The Communities Award, USA and European Excellence Award, Germany, among others.

64. **Social Assessment of Temporarily Rented Lands.** TANAP implemented an assessment of Lands rented to contractors to be used as stockyards. 71 parcels were selected for the study out of a total of 310

²¹ <https://www.tanap.com/store/file/common/817b8a1fc923dffdc8a954e50999664.pdf>.

²² <https://www.tanap.com/store/file/common/68c4ad9e29b87c6c637247d5685df11b.pdf>.

²³ <https://www.tanap.com/store/file/common/e23d13df65a22491fa49ddce8d4bda02.pdf>.



temporarily rented lands. Field studies concluded in October 2020 covered site interviews. TANAP's livelihood expert concluded that six parcels were identified for potential livelihood support issues. TANAP contacted the parcel owners and four of them had complaints, further demands to be assessed by TANAP. Most of the complainants did not specifically pinpoint livelihood losses, but upon their complaints, TANAP made further assessments to better understand whether the complaints were in fact concerning livelihood impacts. One open complaint is related to a reinstatement issue (see more details on the GRM below).

Associated Facilities

65. **The Project had several large associated facilities in the form of upstream gas facilities and gas pipelines, but IBRD requested and received from its Board of Executive Directors a safeguards policy waiver for TANAP's associated facilities²⁴.** The associated facilities included SD2, SCPx, and TAP. The waiver was requested and granted because the World Bank has little to no reasonable expectation that it will: (a) be able to have access to all of the project documentation of the Associated Projects; (b) be allowed to take part in the supervision of the Associated Projects; or (c) be able to negotiate a legal framework that would allow the Bank to exercise remedies in the case of non-compliance with safeguard instruments under the Associated Projects, all of which are necessary for the proper application of the Bank's environmental and safeguard policies. However, recognizing the functional and perceptual linkage between TANAP and these other investments, the Bank team carried out due diligence and reviewed environmental and social assessment documents of the three associated facilities (SD2, SCPx, and TAP) to assess their potential risk levels and management systems during appraisal.

66. **MIGA received a total of two complaints related to associated facilities of the Project.** Details on the complaints received can be found on the website of MIGA's Compliance Advisor Ombudsman²⁵.

Grievance Redress Mechanism

67. **Grievance Redress Mechanism (GRM).** TANAP put in place a GRM mechanism in compliance with the GRM provisions in the legal agreements. As of December 6, 2021, 5,364 grievances were received in the GRM of which 99 percent are closed (5,286). The remaining 78 are mostly related to the reinstatement — i.e., the restoration of areas that are temporarily affected by construction works. These grievances require additional time to restore the areas to the satisfaction of the landowners. The top three grievances during the construction period and the first years of the operations were related to damage to lands and crops, damage to infrastructures/community assets and reinstatement.

68. **For cases that the GRM process was not able to solve to the complainants' satisfaction, four Appeals Committees with independently appointed members were put in place.** The World Bank had recommended that TANAP establish a Grievance Appeals Committee in line with international good practice for large infrastructure projects. TANAP created four committees of local experts that took an active role in resolving complaints when claimants and TANAP could not come to a resolution. TANAP

²⁴ The waiver was sought for OPs/BPs 4.01 (Environmental Assessment), 4.04 (Natural Habitats), 4.36 (Forests), 4.09 (Pest Management), 4.11 (Physical and Cultural Resources), 4.12 (Involuntary Resettlement) and 4.37 (Safety of Dams). No waiver is sought for OP/BP 4.10 (Indigenous Peoples) or OP/BP 7.60 (Disputed Territories) as these policies are not triggered by those operations for any of the countries or the project area in question.

²⁵ <https://www.cao-ombudsman.org/cases/georgia-trans-anatolian-pipeline-01vale> and <https://www.cao-ombudsman.org/cases/azerbajian-tanap-02garajemirli>.



assembled these committees for the four construction lots of the pipeline with different experts appropriate for the social and cultural characteristics of each lot. TANAP also selected reputable experts from local universities, institutes and non-governmental organizations. The Appeals Committees reviewed a total of 25 cases (complaints lodged via TANAP GRM), out of which three remain open and parties of four complaint cases declared that they preferred to escalate the issues to the courts since the affected people and contractors could not agree with the recommendations of the appeals committee. For the operations phase, TANAP has updated the grievance mechanism and has moved to an in-house system of recording and processing the grievances.

Occupational Health and Safety and Working Conditions

69. Occupational Health and Safety and Working Conditions:

- **Health and Safety.** A total of four fatalities occurred after the approval of the World Bank loans (three in 2017 and 1 in 2018) as well as a number of serious injuries and high-potential near misses. In total, since the beginning of construction in 2015, TANAP experienced nine (9) recordable fatalities on project sites and two (2) reportable but not recordable fatalities from a traffic accident involving a third-party fatality, and one (1) commuting road traffic accident. Responding to the inadequate OHS performance by contractors and sub-contractors at the beginning of implementation, the World Bank completed an overall occupational health and safety review and TANAP agreed on mitigation measures (including compensation procedures), and recommendations to avoid such incidents. TANAP took up the recommendations from the Bank team, strengthened its incident reporting system, and re-organized its health and safety team with the appointment of a Director of Quality, Health & Safety, Social and Environment reporting directly to TANAP's General Manager. TANAP acted on the Bank's recommendation and carried out an independent audit to review TANAP's OHS systems and conduct a root cause analysis of fatalities. TANAP also established a monthly Project Health and Safety Recognition Program and Health and Safety Incentive Program, which modeled safe behavior for project teams and construction contractors. OHS performance improved substantially thereafter. Since October 2018, no fatal accidents were recorded.
- **Overtime.** During due diligence, the World Bank team observed in monitoring reports that contractors regularly exceeded limits prescribed by the national labor legislation for worker overtime. TANAP closely monitored and ensured that this work was paid as required by the national laws. In addition, the World Bank worked with TANAP to develop a Working Hours Action Plan, which provided measures for TANAP to gradually reduce overtime hours and maintain them at manageable levels over the life of the Project. The World Bank also monitored the implementation of the Fatigue Management Plan, which was agreed with the EBRD, ensuring that TANAP focused on ensuring that overtime work is performed in safe conditions.
- **Retrenchment.** TANAP did not receive any grievances related to retrenchment. Nevertheless, as per the records of TANAP by the end of December 31, 2021, a total of 144 lawsuits are ongoing which have been filed by employees / contracted workers regarding labor-related disputes. These are pending court decisions (out of a total of 14,000 workers). It should be noted that these disputes are ones where TANAP is a party to the lawsuit or those which have been officially notified to TANAP by the courts. TANAP



will continue to monitor the labor and working conditions of personnel engaged in the operations phase. During the operations phase, a total of five workers grievances have been received and all have been closed.

Environmental Safeguards Compliance

70. **Biorestitution, reforestation, and biodiversity monitoring.** By the time of the ICR, all reinstatement activities in the four lots have been fully completed, including biorestitution and reforestation activities. Biorestitution monitoring continues to be conducted by TANAP's consultants and contractor teams. In addition to biorestitution, the biodiversity offset management strategy, which is in line with EBRD's performance standards, was finalized and disclosed in-country²⁶. The biodiversity offset management plan, in line with the strategy document, was also finalized and the next step is the preparation of site-specific offset management plans that are expected to be completed during Q1/2022. Along the pipeline route, TANAP continues to monitor species of conservation concern that were identified in the biodiversity action plan.

71. **All environmental plans and procedures for the operations phase are in place.**

GHG Emission Impacts During Operation

72. **Total greenhouse gas (GHG) emissions during operations have so far been substantially lower than estimated at appraisal, but venting during normal operations has exceeded appraisal estimates by a factor of around four, and additional gas had to be vented during a gas-leak incident in May 2021.** At appraisal, operational GHG emissions were estimated at about 0.4mt CO_{2-eq}/annum. 97 percent of the emissions were expected to come from self-consumption of gas by the compressor stations, while 3 percent (12 ktCO_{2-eq}/annum) were estimated from sources other than the gas-fired power in the compressor stations, through venting (2.16 percent according to the ESIA) and leaks (0.84 percent). In actual operation, self-consumption was less than half of the appraisal estimate, averaging an annualized 0.165mt²⁷ CO_{2-eq}/annum during the ten months through October 2021, during which total gas transmission volumes were close to capacity (98 percent, 99 percent, and 91 percent of transmission capacity, respectively). Venting during normal operations has caused around four times higher GHG emissions than estimated at appraisal, around 0.038mt CO_{2-eq}/annum for 2021²⁸. Additional venting of gas during a leakage incident in May 2021 caused 0.054mt CO_{2-eq} in GHG emissions. Therefore, even when including the gas leak incident, total GHG emissions in 2021, at 0.256mt CO_{2-eq}, were far below the appraisal estimate of 0.4mt CO_{2-eq}/annum at full capacity.

Independent E&S Monitoring

73. **Third-Party E&S Monitoring.** From 2014 onwards, TANAP engaged three independent E&S consultants as third-party monitoring agents for E&S monitoring. A first third-party E&S monitoring agent was engaged during 2014-2019 with monthly reporting for environmental issues and quarterly reporting for social issues. After approval of RAPs and LRPs by the World Bank, RAP-specific monitoring was carried out by a second third-party agent during 2017-2019 with biannual reporting (internal RAP/LRP monitoring was done by TANAP quarterly). A third independent E&S consultant was engaged in 2018 to monitor

²⁶ <https://www.tanap.com/store/file/common/35e70df209ec6fc640df28f4206564ca.pdf>.

²⁷ Using an emission factor of 56.2 tCO₂/TJ and a net calorific value of 39,021 kJ/scm.

²⁸ Using an average density of 0.667 kg/scm and a factor of 28 for the 100-year GWP (as per IPCC Assessment Report 5).



general E&S monitoring and RAP/LRP issues, reporting biannually from 2018 to the end of 2019 and annually since 2020 (as it is the operation phase). The third-party agent's recommendations and suggestions were systematically addressed by TANAP.

74. **Third-party labor audits** of construction contractors were conducted in line with best practices to verify the compliance of the construction contractors with labor and social security laws from late 2015 until December 31, 2020, when the construction workforce was demobilized.

E&S-related Results

75. **All but one intermediate results indicator related to social impacts, grievances, consultations and employment of women are either successfully met or exceeded the end-term targets.** The one intermediate results indicator that was not fully met at the time of the first draft of the ICR was the registration of affected land parcels, which stood at 99.62 percent as of December 6, 2021, compared to a target of 100 percent. See Annex 1 for details.

Fiduciary

76. **Financial Management.** TANAP maintained satisfactory financial management arrangements throughout implementation. The Project utilized IFR-based disbursement and IFRs were submitted on time and found satisfactory. BOTAŞ, SGC, and TANAP entity audit reports were submitted on time and found satisfactory. All FM-related covenants were complied with.

77. **Procurement.** All procurement-related covenants were complied with, and all major contracts were completed satisfactorily with no material time extension or increase in the original contract price, nor contract terminations. TANAP was an early adopter of the World Bank's new Procurement Framework and represented a good example of the effective use of new techniques stipulated in the Procurement Framework. Key factors and practices contributing to successful procurement and contract management included:

- The procurements under the Project followed TANAP's procurement procedures, which were reviewed by the World Bank during its due diligence and found to meet the Bank's Core Procurement Principles.
- The World Bank reviewed each contract financed by the World Bank loan (and co-financed by the AIIB loan) to assess eligibility for World Bank financing and assessed that each eligible contract was also carried out by TANAP in compliance with its written procurement policy.
- The contracts under the Project were procured as advance procurement specified in the Bank's Procurement Regulations.
- Procurement was supported by a highly-skilled external engineering, procurement and construction management contractor (EPCM) under a very large multi-year contract. At the same time, TANAP's technical and commercial teams remained closely involved rather than leaving the task of advising on contract management entirely to the EPCM, and in certain cases the involvement of these teams allowed TANAP to make better decisions in a more timely manner and avoid cost overruns and implementation delays. To reflect the larger role of TANAP's technical and commercial teams in contract



management, the EPCM's contract was changed to a framework contract during implementation, allowing TANAP to more selectively draw on the EPCM where its involvement was seen as most important. Overall, the highly professional way in which TANAP managed decisions during contract implementation can be seen as one of the key success factors for the cost savings achieved during procurement and contract management.

- Before initiating the procurement of the major contracts, TANAP conducted a detailed market sounding and developed a good procurement strategy.
- The procurement team was supported by highly skilled technical teams, which was essential to conduct successful negotiations with the bidders following the bid evaluations.
- TANAP requested Best-and-Final-Offer from the bidders during the procurement process. The selection of contract types took into consideration the nature, risk and complexity of the procurement, and value for money considerations.
- Key performance indicators were agreed upon with the contractors before executing the contracts, and these indicators were monitored closely during the contract implementation.

C. BANK PERFORMANCE

QUALITY AT ENTRY

78. The **Project's Quality at Entry** was generally high in terms of design, implementation and institutional arrangements, with minor shortcomings related to the assessment of the Project at appraisal:

- The Project's design was sound and appropriate for achieving the PDO.
- The Project was able to sufficiently address E&S issues identified during appraisal, including through a corrective RAP, despite the advanced stage of preparation and implementation activities.
- The Project's implementation and institutional arrangements were adequate and allowed for successful and on-schedule implementation despite the extraordinary complexity of the financed infrastructure.
- The Project's technical and financial appraisal was appropriate.
- The World Bank closely engaged with national governments, co-financiers, the private sector, and all other IFIs active in the Project, including by supporting their due diligence process.
- A shortcoming of the assessment at appraisal was that the World Bank loan would have benefitted from a deeper and more comprehensive climate and GHG emissions impact assessment. In terms of impacts on natural gas consumption in the importing countries, at appraisal, it was concluded that the Project "is not expected to increase or decrease GHG levels in Europe or Turkey because without the development of the [Southern Gas Corridor], Turkey and Europe are likely to import similar quantities of natural gas from other sources." This statement appears inconsistent with the Project's supposed impacts



on economic competitiveness and security of supply, with a theory of change relying on the positive impacts on European consumers of lower and/or more stable gas prices thanks to the new gas supply route through TANAP, implying displacement of higher-priced gas and other fuel sources such as coal. While the likely impact is a reduction in GHG emissions as a result of TANAP, it would have been more prudent to carry out a thorough analysis at the time of appraisal. In terms of GHG emissions during operation, while the overall level of GHG emissions has been lower during operations than estimated at appraisal, the estimated source of GHG emissions was quite far from current levels: it was estimated that the only major source of GHG emissions would be TANAP's gas-powered compressor stations, substantially underestimating the impact of gas venting and leakage (see Section IV B).

- Similarly, the Project's economic assessment by the World Bank would have benefitted from a more thorough assessment of the alternatives to gas supply to demonstrate that gas was indeed the least-cost option to achieve the PDO.
- Lastly, the Project's assessment in the PAD could have reflected more deeply on lessons learned from similarly large pipeline infrastructure projects that the World Bank has financed in the past, such as the MZ-Southern Africa Regional Gas Project (P082308).

QUALITY OF SUPERVISION

79. There were **no shortcomings in the quality of supervision** by the World Bank:

- There was exceptional continuity in the World Bank's task team throughout implementation, with one of the task team leaders as well as experienced environmental, social, procurement, and FM team members staying with the Project from beginning to end. This positively impacted the Project including with respect to client relations where mutual respect and trust was critical especially when there were challenges on the Project that needed to be addressed.
- The high cost-effectiveness of implementation benefited from World Bank inputs during appraisal and implementation on issues related to procurement, technical decisions taken during implementation, contract management, E&S risk management, and fiduciary risk management.
- In terms of stakeholder engagement, through frequent missions to both countries, the team maintained direct channels of communication with TANAP and both Borrowers, and throughout implementation, the task team stayed closely engaged with all key entities involved in the Project from Azerbaijan and Turkey including national governments, international private-sector financiers, and other relevant stakeholders.
- The World Bank also coordinated very closely with all other development partners active in the Project throughout project implementation, including by making sure requests to the client were streamlined and consistent, especially on environment and social safeguards follow-up.
- The World Bank conducted regular, adequately staffed supervision missions and site visits with sufficient attention to fiduciary and safeguards aspects.



- In early 2020, the World Bank responded appropriately to the new situation presented by the COVID-19 pandemic and switched to virtual arrangements, which were adequate in view of the Moderate residual risks at that time.
- Performance reporting was candid, facilitating adequate management guidance and responses.
- A close relationship was maintained with MIGA and AIIB as guarantee provider and co-financier respectively, and kept them properly apprised of all developments under the Project on the World Bank side. With respect to AIIB, the Bank was required to take the lead in carrying out missions and client communications either jointly or on behalf of AIIB, as part of the signed Co-Lender's Agreement.

JUSTIFICATION OF OVERALL RATING OF BANK PERFORMANCE

80. The overall rating of Bank performance is **Satisfactory** in view of only minor shortcomings in Quality at Entry and Quality of Supervision as discussed above.

D. RISK TO DEVELOPMENT OUTCOME

81. **The Project's three development outcomes are very likely to be maintained:**

- Given that the pipeline infrastructure including the pipeline projects before and after TANAP (TAP and SCPx) are fully operational, the residual technical, social, and environmental risks appear low.
- The Project may also be exposed to political risks given the large number of countries crossed by the Southern Gas Corridor from SD2 to Italy, but these have now significantly decreased given that all the components of the Southern Gas Corridor are operational.
- The main residual risks are economic and financial in nature. While long-term gas supply contracts provide TANAP with a stable financial outlook, sustainable pipeline operation may be impacted one way or another if natural gas demand in the importing regions declines sharply and/or piped gas through TANAP becomes severely uncompetitive compared to other fuels. Both prospects appear remote at the time of the ICR, however, as LNG prices soared during 2020 and 2021, and no scenario in the IEA's 2021 World Energy Outlook predicts a decline in European gas demand by more than 19 percent by 2030 compared to 2020. Beyond 2030, however, growing climate-consciousness in the importing countries downstream of TANAP may result in lower-than-expected utilization of the pipeline after the existing commercial contracts have expired.

82. **The Project may be further expanded, which would imply a solidification of the development outcomes achieved.** TANAP and TAP pipelines are designed to be expandable to 31 bcm and 24 bcm, respectively. With the addition of compressor stations, transit to Europe could double to 20 bcm and offtake by Turkey could potentially increase to 11 bcm (or a higher volume of gas could be delivered to the Turkish market with less transit), although there is currently no such expansion foreseen for Turkey as per current design criteria. This potential future project phase would have a relatively low incremental investment requirement (mainly compressor stations), which would enable a substantial reduction in transmission charges.



SECTION V. LESSONS AND RECOMMENDATIONS

Project Design and Implementation

83. **The World Bank's engagement in the Project helped pave the way for other IFIs to support the Project, and a collaborative approach to working jointly with IFIs towards mutual outcomes benefitted the Project.** The World Bank and its co-financier AIIB were the first IFIs to provide financing to the Project. This endorsement of the Project's design and implementation arrangements, as well as TANAP's implementation of recommendations from the World Bank's due diligence on technical, environmental, social, and fiduciary issues, helped facilitate subsequent support from other partners, notably EBRD and EIB. The close coordination with the other IFIs and the collaborative approach to information sharing and due diligence was a key success factor. The Bank team invested significant time and effort in taking on a leadership role when supporting those IFIs with their due diligence. The Bank team also worked to harmonize many of the IFIs appraisal requirements to reduce the burden on the client, which for a project of this size and with many lenders involved was already a challenge to manage.

84. **The World Bank's due diligence and the TANAP's implementation of its recommendations also acted as a mobilizer and catalyzer for about US\$ 1.2 billion of commercial finance.** The World Bank's contribution of international best practices on fiduciary oversight, and environmental and social (E&S) risk management directly contributed to the success in raising commercial financing, by helping TANAP enhance the quality of project design and implementation. This provided comfort to commercial lenders, who in some cases also joined Bank missions, which contributed to their favorable view of the Project and its risks, itself a significant barometer of their inclination to invest and at good terms for the client.

85. **Through the engagement in the Project, the World Bank was also able to deepen its engagement in Azerbaijan, enabling wider contributions to the country's development agenda.** The trust built through the World Bank's impact on the Project facilitated engagements in several other areas under the umbrella of the World Bank's Country Partnership Framework (CPF) for Azerbaijan for FY16-20. It also demonstrated to the government and wider stakeholders in Azerbaijan how the Bank can engage and deliver on transformative projects for the country, and in the process, help pave the way for other partners to support the country.

86. **The use of shareholder finance instead of project finance allowed the Project to be implemented on schedule by reducing complexity and the associated risk of delays.** The choice of financing structure can be assessed as justified in hindsight in view of the complexity of the overall Southern Gas Corridor program, the national strategic nature of the TANAP project, as well as the success in mitigating implementation delays that could have had major cost implications for TANAP and the associated projects as well as substantial impacts on downstream gas customers and consumers.

87. **Timing appraisal and Board approval of large infrastructure projects at a later stage of preparation can substantially reduce implementation risks.** The Project was implemented on time, under budget, and with full fiduciary compliance, which was possible because it was appraised when the institutional structure for implementation was fully ready, the main contracts had already been procured, and works had already begun. This demonstrates the benefits of World Bank financing coming in at a later stage of Project preparation.



88. **The Project’s exclusive focus on the infrastructure investment without components on policy or regulatory issues in Turkey represented a risk, but this risk was successfully mitigated.** During appraisal, the World Bank decided to support the engagement on sector policy and reform in Turkey through parallel lending and advisory operations. This limited the World Bank’s ability to mitigate policy or regulatory risks in the off-taker market under the umbrella of the Project, and is thus only an option in cases where the parallel engagement is sufficiently predictable and the country has a demonstrated track record of sector governance. In the case of this Project, the decision appears justified in view of the solid parallel engagement, and the successful outcome of the Project.

89. **The World Bank’s involvement contributed to the high cost-effectiveness of project implementation.** TANAP benefited from World Bank advice during appraisal of the World Bank loan and implementation support, including on issues related to procurement, technical decisions taken during implementation, contract management, E&S risk management, and fiduciary risk management, all of which impacted the cost-effectiveness of implementation.

90. **Maintaining direct channels of communication with all key stakeholders throughout implementation—including national governments, borrowers, the implementing agency, IFIs, private-sector interests—was critical for the smooth implementation of the Project.** The team went over and above the efforts involved in normal project supervision to maintain open channels of communication and information sharing with the abovementioned entities, which provided a basis for building trust on sensitive issues (e.g., with regards to the financing of the Project or issues around OHS) and resolving challenges faced during implementation. This effort was aided by exceptional continuity in the task team (see next paragraph).

91. **The Project reconfirms that continuity in oversight — in this case, over six years — is a major success factor, especially having experienced environmental and social task team members involved from appraisal to completion.** The Project benefited from unusual continuity in the task team throughout implementation, with one of the task team leaders as well as environmental, social, procurement, and FM team members staying with the Project from preparation until the time of the ICR. This ICR assessed the continuity as being one of the success factors of the Project, which reconfirms the findings from previous World Bank research.²⁹

Environmental and Social

92. **The focused application of the World Bank’s safeguards policies to the TANAP facilities allowed the World Bank to focus its E&S oversight and implementation support and substantially impact the quality of E&S risk management through its recommendations.** The focused application was possible through the Board of Executive Directors’ approval of a safeguard policy waiver for TANAP’s large associated facilities (SCPx, SD2, and TAP), for which the World Bank had little to no reasonable expectation to (a) be able to have access to all of the project documentation; (b) be allowed to take part in supervision, or (c) be able to negotiate a legal framework that would allow the Bank to exercise remedies in the case of non-compliance with safeguard instruments.

²⁹ <https://documents1.worldbank.org/curated/en/394731639508728939/pdf/A-Puzzle-with-Missing-Pieces-Explaining-the-Effectiveness-of-World-Bank-Development-Projects.pdf>.



93. **Many good E&S practices were identified during implementation and are being disseminated through a separate lessons-learned note which will be published and disseminated widely when completed.** The World Bank team has prepared a lessons learned case study (“Adaptive Management and Engagement in Large Infrastructure Projects – the TANAP case study”) to capture good practices that TANAP implemented to manage its social and environmental risks. The case study also examines practices in contractor selection, contract and claims management, and procurement and technical design that helped achieve the project’s objectives. Among others, the note highlighted the following lessons learned:

- **General:**

- i. **Organization.** TANAP organized its environment, social, and health and safety units into one directorate, with a director reporting directly to TANAP’s General Manager. This direct reporting mechanism played a critical role in expediting internal communication and decision making. It enabled urgent messages to reach senior management much faster and more clearly and directly. Further, TANAP established a strong Environmental and Social Management System (ESMS) to identify and manage risks to the environment, local communities, and its workers’ health and safety. Strong management support and highly skilled staff underpinned the ESMS.

- **Social risk mitigation:**

- i. **Land acquisition.** TANAP was able to use the pipeline route selection process to carefully avoid any physical displacement across the 7,000 hectares of land it impacted. For land acquisition, a strong multidisciplinary social impact and land acquisition team with well-defined roles and a dedicated resettlement budget made it possible to complete all land acquisition and livelihood restoration activities on time and within budget, without any construction stoppage or delays. The use of a RAP Fund to bridge gaps between local laws and IFIs requirements helped mitigate social risks, as did the use of an independent panel of experts to monitor progress in expropriation related activities. The Project also benefited from investments in sustainable local development through its Social and Environmental Investment Program and additional livelihood support to needy vulnerable families and empowerment of women through focused consultations and support to income-earning opportunities.

- ii. **Stakeholder engagement and grievance redress.** TANAP maintained a robust information management system to track, analyze, and report stakeholder engagement and grievances. A robust two-way stakeholder engagement program, including annual stakeholder consultation meetings, helped TANAP monitor and address impacts along the pipeline corridor and local communities. The use of appeals committees to redress grievances who are not satisfied with the decisions of the grievance committee before they are escalated to court improved the chances of settling cases amicably and at a lower cost to both parties.

- iii. **Labor conditions.** TANAP engaged third-party monitors to guarantee that construction contractors provided all workers with fair and safe working conditions. When monitoring uncovered concerns, TANAP promptly designed and implemented remedial action plans to resolve them.



- iv. **Worker camps.** Extensive stakeholder engagement determined the selection of camp locations. Camp construction and resulting facilities followed international good practices for safe and sanitary camps. Water use and waste disposal in camps did not affect local communities. Stakeholder engagement also shaped camp closure plans and infrastructure/facility transfers to local administrations. Worker camps were planned and constructed in parallel with principal contractor bidding, saving the Project a construction season.
- v. **Inclusive employment opportunities, including for women.** Early in the Project design, a local skills analysis study was conducted to assess the local workforce and the opportunities to provide inclusive employment opportunities tailored to the availability of specific skills to meet the needs of the Project. After an assessment of the results of the study, people from local communities were employed primarily in unskilled and semi-skilled roles, while women from the local communities worked in roles such as catering and maintenance or housekeeping staff.

- **Environmental risk mitigation:**

- 1. **Biodiversity.** Route alignment in line with rigorous baseline studies helped TANAP avoid most critical habitats and helped inform and design detailed mitigation measures for the Project, especially in biodiversity preservation. TANAP successfully applied a mitigation hierarchy during pipeline route selection to avoid, minimize, mitigate, and offset environmental and social impacts.
 - i. **Archeological finds.** With robust archeological chance find procedures and Management of Change procedures, TANAP rerouted the pipeline in response to chance finds during construction. When re-routing was not possible, careful salvage excavations unearthed over 1,000 archeological objects.

94. **Occupational health and safety (OHS) and adequate working conditions must be prioritized in the appraisal of large infrastructure projects.** TANAP had an OHS plan in place which was reflected in contractor contracts but implementation was insufficient in the beginning and the Project faced relatively severe OHS issues in the first 18 months after Board approval (see Section IV B). While these issues were eventually remedied, a key lesson learned is that large infrastructure projects must feature periodic OHS plan reviews and revision with senior management involvement, including, where appropriate, the introduction of permit-to-work mechanisms, training schedules, fines and penalties as well as OHS bonus schemes. Further, as a result of the World Bank's due diligence of labor and working conditions during preparation, TANAP implemented targeted measures to remedy issues of excessive overtime and fatigue-related safety hazards, which resulted in the improved overall OHS performance. This lesson is reflected in the World Bank's new Environmental and Social Framework, which covers labor and working conditions, unlike the old Safeguards Policies under which TANAP was prepared.

95. **Gas leakage and venting must be taken into account with conservative assumptions in the climate appraisal of gas pipeline projects.** Both venting and appraisal of gas during operations were substantially underestimated in the GHG analysis of the Project at appraisal. In future World Bank projects, more conservative assumptions need to be incorporated into the appraisal of gas pipelines, given the potency of natural gas as a greenhouse gas and the sensitivity of the economic analysis of gas pipelines to climate impacts.



Fiduciary

96. **The application of TANAP's procurement procedures facilitated cost-effective procurement under the Project, and both procurement and contract management benefited from the parallel engagement of a highly-skilled external EPCM consultancy to complement TANAP's internal technical and commercial teams.** The highly professional way in which TANAP managed decisions during contract implementation can be seen one of the key success factors for the cost savings achieved during procurement and contract management. This involved the hiring of an EPCM consultancy and the parallel involvement of TANAP's technical and commercial teams. Procurement also applied many other best-practices, including detailed market sounding; support by highly-skilled technical teams, which was essential to conduct successful negotiations with the bidders following the bid evaluations; requesting the BAFO from bidders; selection of contract types taken into consideration the nature, risk and complexity of the procurement, and value for money considerations; and close monitoring of key performance indicators during contract implementation.



ANNEX 1 A. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Diversify Azerbaijan's gas export markets

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Diversifying Azerbaijan's Gas Export Markets	Cubic meters/year	0.00	4000000000.00		7,411,563,860.00
		01-Jul-2016	31-Jan-2021		30-Sep-2021

Comments (achievements against targets):

Target was fully achieved. The cumulative total crossed the value of 4.0 bcm in late July 2021, a few days before project closure, compared to the date of December 31, 2020 targeted at appraisal. The delays were due to the off-take pipeline TAP, and thus outside of the control of TANAP. As of September 30, 2021, the annualized gas deliveries from Azerbaijan to South-East Europe reached 7.4 bcm. The annualized value for 2021 is a conservative estimate, assuming deliveries during October-December 2021 remain at average level of January-September 2021. The plateau of minimum 10.5 bcm p.a. is expected to be reached in January 2022, as planned at the time of appraisal.

Objective/Outcome: Improve the security of Turkey's energy supply

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
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Improving the Security of Turkey's Energy Supply	Cubic meters/year	0.00	4500000000.00		5,693,970,558.00
		01-Jul-2016	31-Jan-2021		30-Sep-2021

Comments (achievements against targets):

Target was fully achieved. The plateau of gas deliveries of minimum 5.7 bcm p.a. (contractual) was reached in late 2020, a bit earlier than planned at the time of appraisal, and higher than the level of 5.4 bcm p.a. planned at appraisal. The cumulative total crossed the value of 8.0 bcm by in mid-December 2020, compared to the date of December 31, 2020, targeted at appraisal. As of September 30, 2021, the annualized deliveries in 2021 to Turkey reached 5.69 bcm p.a. The annualized value for 2021 is a conservative estimate, assuming deliveries during October-December 2021 remain at average level of January-September 2021.

Objective/Outcome: Improve the security of South East Europe's energy supply

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Improving the Security of Europe's Energy Supply	Cubic meters/year	0.00	4000000000.00		7,411,563,860.00
		01-Jul-2016	31-Jan-2021		30-Sep-2021

Comments (achievements against targets):

Target was fully achieved. This indicator was designed to be the mirror-indicator of PDO Indicator 1, measuring South-East Europe's gas imports from a new source, Azerbaijan. See above for a discussion of the level and timing of achievement.



A.2 Intermediate Results Indicators

Component: Trans-Anatolian Natural Gas Pipeline

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Availability of TANAP for Gas Supply to Turkey	Cubic meters/year	0.00	5400000000.00		5,700,000,000.00
		01-Jul-2016	31-Jan-2021		31-Jan-2021

Comments (achievements against targets):

Target was overachieved.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Turkish Gas Consumers Benefitting from Gas Supply	Number (Thousand)	11,000.00	15000.00		17,500.00
		01-Jul-2016	31-Jan-2021		31-Jan-2021

Comments (achievements against targets):

Target was overachieved.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at
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				Target	Completion
Registered grievances addressed within the stipulated time frame	Percentage	91.00 01-Jul-2016	93.00 31-Jan-2021		98.73 06-Dec-2021

Comments (achievements against targets):

The result was overachieved. As of December 6, 2021, 5,364 grievances were received in the GRM and 99 percent of them are closed (5,286) and the remaining 78 are mostly related to reinstatement which are being addressed in the coming months.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of community consultations held as of the total number of communities along the actively worked sections of the pipeline	Percentage	100.00 01-Jul-2016	100.00 31-Jan-2021		100.00 31-Jan-2021

Comments (achievements against targets):

Target was fully achieved.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of community	Percentage	18.00	40.00		40.00



consultations held for women as of the total number of communities along the actively worked sections of the pipeline (and % of consultations held separately for women)		01-Jul-2016	31-Jan-2021		31-Jan-2021
<p>Comments (achievements against targets): Target was fully achieved.</p>					

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Share of women employed by construction contractors out of total employee number	Percentage	5.00 01-Jul-2016	5.00 31-Jan-2021		6.00 30-Apr-2018

Comments (achievements against targets):
The share of female workers fluctuated between 5 percent and 13 percent during implementation, compared to a target of 5 percent. At the time of Project closure, the share of female employees among contracts stood at 11 percent, which was more than double the Project target of 5 percent because by this time most construction firms (which have lower shares of female workers) had already demobilized. During peak construction, the share of female workers stood at 6 percent in April 2018. The data during peak construction is used as the results measure, to reflect the moment of peak employment.



Component: Land Acquisition

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Progress in registration of affected private land parcels	Percentage	32.00	100.00		99.62
		01-Jul-2016	31-Jan-2021		06-Dec-2021
Progress in registration of affected private land parcels	Number	6072.00	18778.00		21,279.00

Comments (achievements against targets):

The result was achieved when evaluating the total number of land parcels registered compared to the appraised estimate and almost achieved when evaluating the percentage of registered (as the number of affected land parcels increased during implementation compared to the appraisal estimates). Registration of affected private land parcels (used as an indicator for measuring resettlement implementation progress) stands at 99.55 percent of the 21,279 land parcels as of December 6, 2021. When counting only land required up to commissioning, and thus excluding land acquired for modifications introduced during operations, the percentage of land parcels registered increases to 99.62 percent, which is the value used for evaluation of the project in the results framework. 100 percent has not been achieved yet due to ongoing non-project related (external) factors such land consolidation or cadastral renewals.



ANNEX 1 B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: Diversify Azerbaijan's gas export markets	
Outcome Indicators	Outcome 1 / PDO-level Indicator 1: Diversifying Azerbaijan's natural gas export markets, with a target of 4.0 bcm per year of gas exports to new off-take markets by the end of 2020.
Intermediate Results Indicators	n.a.
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	<p>Component 1: TANAP's gas transmission capacity to South-East Europe was fully established on December 31, 2020 (commercial operation date, or COD), compared to an anticipated date in early 2020. The delays were caused by construction progress on the TAP-side; the TANAP-side of the pipeline was constructed by October 30, 2019. Gas deliveries to the Trans-Adriatic Pipeline (TAP) commenced on December 31, 2020, and reached a level of 6.2 bcm p.a. (annualized) in January 2021 (immediately surpassing the target value of 4.0 bcm). At the time of ICR, the annualized average deliveries over the four preceding months were 9.4 bcm p.a. The plateau of 10.5 bcm p.a. is expected to be reached on January 1, 2022, as planned at the time of appraisal, and a higher level than the 10.0 bcm p.a. foreseen at appraisal. As of September 30, 2021, a cumulative total of 5.57 bcm of gas has been exported from Azerbaijan to new natural gas export markets in South-East Europe. The cumulative total crossed the value of 4.0 bcm in late July 2021, a few days before project closure, compared to the date of December 31, 2020 targeted at appraisal.</p> <p>Components 2 (Implementation of RAPs) and 3 (consulting services) were critical factors enabling completion on-schedule of the pipeline interconnection with South-East Europe.</p>
Objective/Outcome 2: Improve the security of Turkey's energy supply	
Outcome Indicators	Outcome 2 / PDO-level Indicator 2: Improving the security of Turkey's energy supply, with a target of 4.5 bcm per year of additional gas imports by the end of 2020.
Intermediate Results Indicators	Intermediate Results Indicator 1: Availability of TANAP for Gas Supply to Turkey, with a target of 5.4 bcm per year by the end of 2020.



	Intermediate Results Indicator 2: Turkish Gas Consumers benefitting from gas supply (million), with a target of 15 million by the end of 2020.
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	<p>Component 1: TANAP’s gas transmission capacity to Turkey was fully established on June 30, 2018 (COD), as planned, and reached a level of 4.5 bcm p.a. (annualized) in July 2020 (total deliveries for 2020 were 4.7 bcm). The plateau of gas deliveries of minimum 5.7 bcm p.a. was reached in July 2020, a bit earlier than planned at the time of appraisal, and at a higher level than the foreseen 5.4 bcm p.a. As of September 30, 2021, a cumulative total of 12.57 bcm has been delivered to Turkey. The cumulative total crossed the value of 8.0 bcm by in mid-December 2020, compared to the date of December 31, 2020 targeted at appraisal. The availability of TANAP gas supply to Turkey (Intermediate Results Indicator 1) reached 5.7 bcm p.a. compared to a target of 5.4 bcm p.a. by the end of 2020. The number of Turkish gas consumers benefitting from gas supply (Intermediate Results Indicator 2) reached 17.5 million by the end of 2020, compared to a target of 15 million.</p> <p>Components 2 (Implementation of RAPs) and 3 (consulting services) were critical factors enabling completion on-schedule of the pipeline interconnection with Turkey.</p>
Objective/Outcome 3: Improve the security of South-East Europe’s energy supply	
Outcome Indicators	Outcome 3 / PDO-level Indicator 3: Improving the security of South-East Europe’s energy supply, with a target of 4.0 bcm per year of gas imports from new supply sources by the end of 2020.
Intermediate Results Indicators	n.a.
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	This indicator was designed to be the mirror-indicator of PDO Indicator 1, measuring South-East Europe’s gas imports from a new source, Azerbaijan. See above for a discussion of key outputs by component.



ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Abdulaziz Faghi, Kari J. Nyman, Fatma Yesim Akcollu Oguz	Task Team Leader(s)
Salih Kemal Kalyoncu	Procurement Specialist(s)
Ayşe Seda Aroymak	Financial Management Specialist
Tamar Sulukhia	Team Member
Ruxandra Maria Floroiu	Safeguards Advisor/ESSA
Dariusz Kobus	Social Specialist
Tunya Celasin Aydinalp	Team Member
Ruth Tiffer-Sotomayor	Social Specialist
Gulana Enar Hajjiyeva	Social Specialist
Heather B. Worley	Team Member
Alan F. Townsend	Team Member
Turan Hazar	Social Specialist
Marina Djabbarzade	Social Specialist
Darejan Kapanadze	Environmental Specialist
Lisa Lui	Counsel
Eavan O'Halloran	Team Member
I. U. B. Reddy	Social Specialist
Nina Chee	Safeguards Advisor/ESSA
Hiwote Tadesse	Team Member



Agnes I. Kiss	Safeguards Advisor/ESSA
Rozena Serrano	Team Member
Arturo S. Rivera	Team Member
David Reinstein	Peer Reviewer
Patrice Philippe Marie Joseph De Martin De Vivies	Peer Reviewer
Richard Bernard MacGeorge	Team Member
Selcuk Ruscuklu	Team Member
Emre Kaya	Environmental Specialist
Lala Talibova	Team Member
Zhengjia Meng	Team Member
Robert Hale Montgomery	Environmental Specialist
Esra Arikan	Environmental Specialist
Tural Jamalov	Team Member
Jelena Lukic	Social Specialist
Lela Shatirishvili	Social Specialist
Sadig Aliyev	Team Member
Arzu Uraz Yavas	Social Specialist
Nigar Sadikhova	Team Member
Alexandrina Platonova-Oquab	Peer Reviewer
Juliana Chinyeaka Victor	Team Member
Jorge E. Villegas	Social Specialist
Bakhtiyar Karimov	Team Member
Jasna Mestnik	Team Member
Supervision/ICR	



Abdulaziz Faghi	Task Team Leader(s)
Salih Kemal Kalyoncu	Procurement Specialist(s)
Ayşe Seda Aroymak	Financial Management Specialist
Eyup Mermer	Team Member
Selcuk Ruscuklu	Procurement Team
Esra Arikan	Environmental Specialist
Tural Jamalov	Team Member
Jelena Lukic	TSocial Specialist
Ma Dessirie Kalinski	Team Member
Arzu Uraz Yavas	Social Specialist
Jasna Mestnik	Team Member
Tunya Celasin Aydinalp	Team Member
Heather B. Worley	Team Member
Lisa Lui	Counsel
I. U. B. Reddy	Social Specialist

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US\$ (including travel and consultant costs)
Preparation		
FY16	87.089	512,831.25
FY17	67.304	389,408.12
FY18	0	373.67
Total	154.39	902,613.04
Supervision/ICR		
FY17	13.506	-133,678.73
FY18	52.049	220,020.72
FY19	26.736	106,024.17



FY20	34.365	151,845.96
Total	126.66	344,212.12

ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval (%)
Trans-Anatolian Natural Gas Pipeline	7,700.00	5,411.82	70
Land Acquisition	200.00	157.08	79
Consulting Services for Studies, Design, Engineering, Procurement, Construction management, Supervision, and Monitoring	700.00	740.36	106
Total	8,600.00	6,309.26	73

ANNEX 4. EFFICIENCY ANALYSIS

97. **Quantitative methodology.** To complement the qualitative analysis in Section II C, the quantitative efficiency analysis re-assesses the outcomes of the economic analysis at the time of appraisal with actual timelines of investment expenditures and gas deliveries up to the plateau delivery levels.

98. **Economic benefits.** The entire 16 bcm p.a. production of SD2 and the gas transmission capacity of the pipelines, including TANAP, have been contracted under long-term gas sale and transportation agreements. The approach used in the quantitative project economic analysis at appraisal was to use TANAP's estimated gas transmission revenues as a proxy for economic benefit and compare this conservative measure of benefits against the investment and estimated operational costs (excluding tax payments to the Government) of the TANAP Pipeline System. TANAP's gas transmission revenues ramp up proportionally to deliveries.

99. **Economic costs.** The economic costs assumed in the analysis are the actual investment expenditures for the construction of TANAP. The assumption used for the analysis is based on a pipeline capacity designed for 31 bcm p.a. while the revenues, on the other hand, are based on volumes of gas equal to the contractually committed 16 bcm p.a., only. While revenues take time to build up, the investment costs are incurred upfront, thereby creating a mismatch in the cash flows, which contributes to a slightly lower economic rate of return (ERR).

100. **Results.** Based on the assumptions outlined above and using the updated timelines for investment expenditures and gas deliveries, the ERR and Net Present Value (NPV) (using a discount rate of 6 percent) are estimated by the Bank at about 12.37 percent and US\$3.94 billion, respectively.

101. **The abovementioned results are a conservative estimate.** The economic benefits of gas supply facilitated by TANAP also include lower gas costs in the importing countries; gas supply security and diversification; employment of about 9,000 people directly and another 5,000 people indirectly through construction, support services, pipe manufacturing and other areas of the project, as well as permanent employment of about 350 people.

**SUMMARY of
TANAP PROJECT
COMPLETION REPORT**



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1 INTRODUCTION

1.1 Background

The Trans Anatolian Natural Gas Pipeline (“TANAP Project” or “TANAP System”) involves of the construction and operation of an approximately 1811km of gas pipeline across Turkey, starting at the Georgian border near the Turkish village of Türkgözü in the Posof district of Ardahan, running through 20 provinces until its end at the Greek border in the Ipsala district of Edirne.

TANAP Project is part of the Southern Gas Corridor consisting of expansion of the Shah Deniz gas-condensate field in Azerbaijan and pipeline network stretching for more than 3,200 km through South Caucasus Pipeline (SCP), TANAP and the Trans-Adriatic Pipeline (TAP).

1.2 Purpose

The purpose of the Project Completion Report is to provide a summary of the project scope, comparison of the project baseline schedule and actual performance, project metrics, and lessons learned during the implementation of the Project. This report serves as the official closure of the project and provides a permanent record for reference for project Stakeholders.

1.3 Project Shareholders

“Southern Gas Corridor” Closed Joint Stock Company (SGC) holds 51 percent share in TANAP Project, whilst 7 percent is held by SOCAR Turkey Enerji A.Ş (STEAS). Boru Hatları İle Petrol Taşıma Anonim Şirketi (BOTAŞ), holds a 30 percent share in TANAP Project. The remaining 12 percent share is held by BP Pipelines (TANAP) Limited, a subsidiary of the international oil and gas company BP plc.

1.4 International Finance Institutions in the Project

As of 2016, various international finance institutions (IFIs) have been involved in the Project as the external stakeholders with the loans they provided for meeting a part of financing requirement of the Project in addition to the Project Shareholders’ contributions. These IFIs were World Bank (WB)/International Bank of Reconstruction and Development (IBRD), European Bank for Reconstruction and Development (EBRD), Asian Infrastructure Investment Bank (AIIB) (joint co-financing with World Bank loans), European Investment Bank (EIB) and European Union (EU) with its several small grants.

2 PROJECT ACCOMPLISHMENT

2.1 TANAP Objectives

The key Project Objectives were:

- a) To deliver a project with no serious incident regarding health & safety;
- b) To deliver a project with no harm to the environment;
- c) To deliver a project that meets all quality requirements;
- d) To deliver a project on budget;
- e) To deliver a project on schedule;
- f) Deliver a sustainable world-class integrated gas pipeline system for the efficient transportation of gas;
- g) To ensure sufficient and timely commitments for capacity utilization to justify full Project Sanction and demonstrate the viability and bankability of the Project; and
- h) To ensure safe and reliable operation which would generate a reliable cash flow as would be required to pay all operational expenses, service the Project's debt obligations, and generate the desired return on investment for shareholders and investors.

The key business objectives were:

- a) Optimise project life cycle cost;
- b) Maximise value and return of the Project;
- c) To align with the overall integrated value proposition of the Project;
- d) To achieve Ready for Operation (RFO) status (deliver gas to BOTAŞ network) by June 2018;
- e) To achieve commercial gas delivery to Turkey and European Market; and
- f) To comply with all Health, Safety, Quality, Environmental and Social Policies established for the Project with no harm to people or negative environmental and/or social impact in the areas affected by Project activities.

2.2 TANAP Project Framework Agreements

The development of the Project is based on several Framework Agreements, demonstrating the political will and support of the Host Governments, providing the structural basis for the Shareholders required for a trans-border transmission pipeline of this kind. These include:

- a) Government Level Legal Framework Agreements;
- b) Intergovernmental Agreement, (IGA);
- c) Host Government Agreements (HGAs);
- d) Shareholders Agreement (Refer to Section 1.6);
- e) Articles of Association;
- f) Gas Transit/Transportation Agreements (GTA);
- g) Linefill Agreements;
- h) Commissioning Gas Transportation Agreements (CGTA);
- i) Operation Agreements; and
- j) Interconnection Agreements.

2.3 TANAP Project Achievements

2.3.1 Project Budget & Cost Breakdown

Estimated Project Cost at Appraisal	Approved Actual Project Cost	Description Variances (Savings/Overruns)
8,6 Billion USD ¹	6,3 Billion USD	TANAP Construction Budget Class 3 Update was developed early in 2015 based on the data (relatively immature) that were available at that time. During the implementation of the Project as more data become available and as a result of rigorous efficiency and performance management applied by Project Management Team, costs were reduced significantly. Also TANAP Project enjoyed slowdown in construction projects and reduction in steel prices when the contracts were negotiated and awarded. Accordingly, and as a result of tough contract negotiations TANAP Project Management Team ensured that significant savings are made when signing contracts. However, due to uncertainties in the construction as well as manufacturing industries at the time, some of the estimated costs were not reduced and additional contingencies were built in to the overall Class 3 Update. As a result of intensive and diligent efforts of TANAP Project Management Team that resulted in the successful completion of the TANAP Project such contingencies were never needed.

¹ Project RTC (Resolution to Construct) Budget was estimated as 11.47 Billion USD. As more data become available and as a result of studies, estimation were reduced to 8,6 Billion USD.

Breakdown of Final cost by components

Components ²	Cost in K USD
Component 1*: The construction of a 1,811 km pipeline beginning at Turkey's border with Georgia and ending at Turkey's border with Greece.	5,411,818
Component 2**: All land acquisition-related costs	157,078
Component 3***: Related consulting services	740,360
Total	6,309,256

* Component 1 refers to the costs spent for the construction of a 1,811[1] km pipeline beginning at Turkey's border with Georgia and ending at Turkey's border with Greece. The Component also financed the construction of connection points to the Turkish natural gas network in two locations, at Eskişehir and Thrace, for the delivery of 6 bcm of gas per year for the Turkish gas market. The financed pipeline infrastructure included four onshore pipeline lots as well as the offshore pipeline lot [3]; compressor stations and metering stations; pig launchers, receiving facilities and block valve stations (BVS); and the main control center (MCC). The pipeline up to Eskişehir has a diameter of 56 inches; from Eskişehir to the Greek border the diameter is 48 inches except for two parallel 36 inch pipeline for the 18 km section crossing the Marmara Sea.

** Component 2 refers to the costs spent for land acquisition-related costs covering: (a) cash compensation for private land acquisition (i.e. compensation for permanent, exclusive and temporary land rights basis; damages to crops and assets; and legal administrative expenses); (b) other assistance such as implementation of livelihood restoration plans and payments under the Resettlement Action Plan (RAP) Fund to assist affected informal land users, settlers and other expenses for payment of costs not payable under the Turkish law, but required to meet IFI's social provisions; (c) expenses for the forestry lands (i.e. entry costs and annual leases); and (d) design, implementation and monitoring of RAPs. Land acquisition related costs were not financed by the lenders, but met from own resources.

*** Component 3 refers to the costs spent for consulting services for studies, design, engineering, procurement, construction management, supervision and monitoring.

2.3.2 Project Scope

As part of the Southern Gas Corridor, the Trans Anatolian Natural Gas Pipeline (TANAP) has been built to transport Azeri gas from the Shah Deniz 2 Gas Field in the Caspian Sea and other fields of Azerbaijan (and other possible neighbouring countries) to Turkey and to Europe at Turkey/Greece border through the Trans-Adriatic Pipeline (Figure 1).

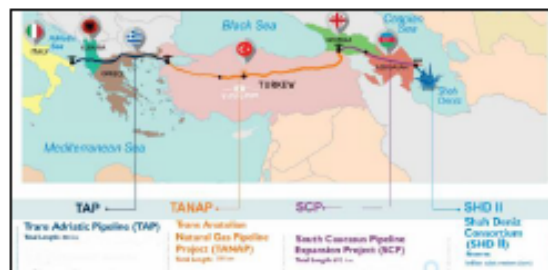


Figure 1 : Trans Anatolian Natural Gas Pipeline

² Categorization defined under Loan Agreement signed with IBRD.

TANAP comprises of 56" Pipeline section which reduces to 48" as part of onshore sections with 36" offshore pipeline crossing section:

- 56" Section of the onshore pipeline - Stretching approximately 1,338 km from the Interconnection point with SCP System at the Georgian - Turkey border to the TANAP compressor station entry point at Eskişehir. This includes all associated facilities which make up the TANAP System for this section.
- 48" Section of the onshore pipeline - Stretching approximately 454.04 km from the TANAP compressor station exit point at Eskişehir to the Interconnection point with TAP System at the Turkey - Greece border including the Exit Point at Thrace. This includes all associated facilities which make up the TANAP System for this section.
- Two 36" Section off-shore pipelines - Running two parallel lines and merging into the onshore Station sections Dardanelle East and Dardanelle West on either side of the Sea of Marmara. This section is approximately 18.78 km in length.

The TANAP System reaches a total of approximately 1,811 km. This includes off-take stations and aboveground installations as detailed below:

- 2 Compressor Stations
- 1 Offtake Compressor Station to supply gas to Turkey's national natural gas network
- 4 Metering Stations
- 11 Pigging Stations
- 49 Block Valve Stations
- 1 Main Control Centre (MCC), located at Gölbaşı, Ankara
- 1 Back-Up Control Centre (BCC) Located within the CS5 Facility at Eskişehir
- Pipeline Monitoring System, SCADA/Telecoms/Security Systems, SOCAR Fibre Optic System and Fibre Optic Cable Network connecting the Containers at Above Ground Installations (AGIs) for TANAP & SOCAR

Construction of the TANAP Project has been completed in two Phases:

- Phase 0: 56" Pipeline section from the Georgian/Turkish border to the off-take point located near Eskişehir Province in Turkey with associated facilities
- Phase 1: 48" Pipeline section from Eskişehir Province of Turkey to the Turkish/Greek border with associated facilities. This includes the offshore section which comprises of 2 x 36" pipelines

Phase 0 of the TANAP for enabling gas delivery into BOTAŞ System, was commissioned and became commercially operational on 30th of June 2018.

Phase 1 of TANAP for enabling gas delivery into TAP, was commissioned at the end of October 2019, The Interconnecting pipeline from TANAP Metering Station MS4 to TAP was line filled on 25-26th of November 2019 and made ready for commercial operations. Phase 1 of TANAP System started receiving commercial gas on 31st of December 2020.

The indicative locations of the Compressor and Metering stations along the TANAP System, both Phase 0 and 1, are shown in Figure 2.

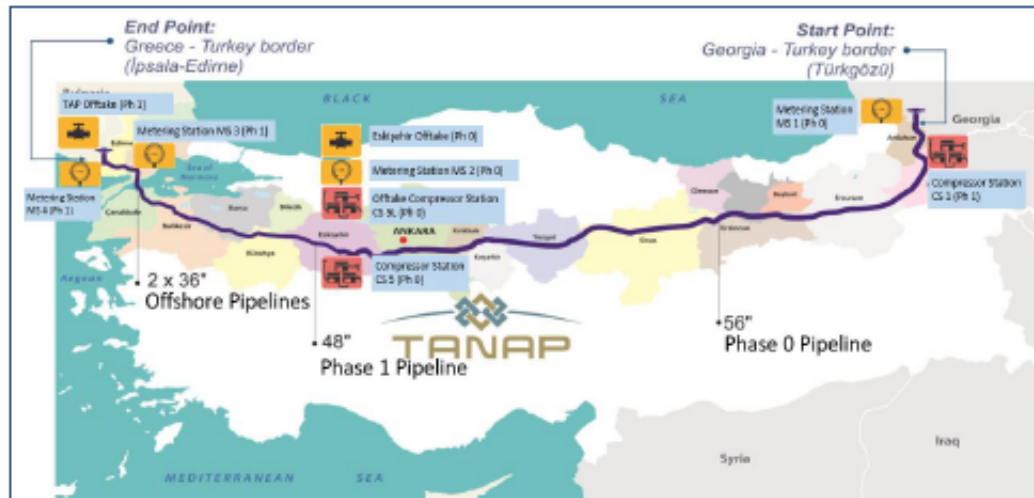


Figure 2: Location of Facilities

2.3.3 Project Schedule

Project Start Date	Project Baseline Completion Date	Project Final Approved Completion Date	Start of Commercial Operation to Europe (Phase 1)
17 December 2013	30 June 2019	30 June 2019	31 December 2020

2.3.3.1 Project Major Milestones

The construction of the pipeline began in 2015 and gas deliveries to Turkey commenced on 30th of June 2018, while gas deliveries to Europe via the TAP began on the 31st of December 2020. TANAP is a 56-inch and 48-inch pipeline system designed to transport natural gas to the required quantity in stages, starting with 16 bcma at the initial phase and being expanded to a high flow case of 31 bcma, in the last phase. The pipeline will deliver 6 bcma of natural gas to BOTAŞ for use in Turkey, and 10bcma to Europe via the TAP at the plateau period.

2.3.3.2 Project Key Milestones

Milestone	Date
IGA and HGA Ratified	26 June 2012
GTA Signed FID Made	17 December 2013
EPCM Contract Award	16 April 2014
FEED Completed	8 June 2014
ESIA Positive Decision by MoEU	24 July 2014
Early Works Commenced	29 August 2014
56" Pipeline Construction Contracts Award	23 December 2014
Ball Valves Contract Award	26 February 2015
Delivery of RoW for the first 6*100 km	16 March 2015
56" Pipeline Construction Start	17 March 2015
Delivery of Camps 56" Pipeline Construction Contractors	17 April 2015
First Delivery of Linepipes	27 May 2015
Turbo Compressor Contract Award - 1	1 July 2015
Turbo Compressor Contract Award - 2	22 July 2015
SCADA Telecoms Contract Award	26 October 2015
48" Pipeline Construction Start	20 May 2016
Offshore Pipeline Construction Award	27 July 2016
Pipeline Commissioning Start	23 January 2016
First Gas Delivery to Turkey (Phase 0)	30 June 2018
Pipeline Commissioning Completed	15 June 2019
Completion of Stations Commissioning	26 November 2019
TANAP made its system fully available by Start Date for commercial operation	01 July 2020
Completion of Transit Services for TAP Linefill under CGTA	19 December 2020
First Gas Delivery to Europe (Phase 1)	31 December 2020

3 PROJECT MANAGEMENT PROCESSES

TANAP Project was completed on time and under budget adhering to very high safety, environmental, social and quality standards. Public perception of the project is generally positive which is difficult to achieve for mega projects of this scale. The project had mainly a positive impact on society and environment and all stakeholders.

As a result of this successful performance, TANAP Project received the “Project of the Year” award on 20th of October 2020 from the Project Management Institute (PMI) which supports the development and implementation of professional standards in project, programme and portfolio management.

Large-scale megaprojects such as TANAP Project are complex ventures that cost billions of money, take many years to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people. An adaptive leadership framework developed within Project, facilitated the process that stakeholders and Project Team needed to adapt in order to respond effectively to changing environment.

TANAP Project leadership and management methodology was based on the close interaction between Project Team and Shareholders using practical and effective common platforms. Project Team chose to closely collaborate with Project contractor’s rather than delaying the solution of the problems by conservatively and unilaterally following the provisions within the contractual clauses. Such close collaboration helped resolution of problems faster and responding to constant changes in line with the project targets and needs. Whilst such project management motivated all stakeholders to reach a common goal, it also created an open environment between parties when pursuing their contractual rights.

In relations with key stakeholders and Project Shareholders, decisions have been taken in line with the goals and objectives of the project. As a result of the efficient communications with Shareholders, new plans and/or changes developed against concerns that occurred during the Project lifecycle were discussed and evaluated expeditiously and put into practice quickly by Project Team.

3.1.1 Project Major Contract Closure

Status of Project Major Contract Closure are listed below:

Scope	Area	Contractor	Status	Remarks
Onshore Pipeline Construction Contracts	Lot 1	Fernas İnşaat A.Ş.	<u>Mechanical Completion :</u> 25 December 2017 <u>Provisional Acceptance :</u> 30 July 2019	Extended Warranty Period ended on 25 December 2021.
	Lot 2	Sicim-Yüksel-Akkord J.V.	<u>Mechanical Completion :</u> 12 December 2017 <u>Provisional Acceptance :</u> 24 December 2018 <u>Final Acceptance :</u> 20 October 2021	Extended Warranty Period ended on 12 December 2021.
	Lot 3	Tekfen İnşaat ve Tesisat A.Ş	<u>Mechanical Completion :</u> 12 December 2017 <u>Provisional Acceptance :</u> 16 January 2019 <u>Final Acceptance :</u> 11 June 2021	Extended Warranty Period ended on 12 December 2021.
	Lot 4	Punj Lloyd Limak - Kalyon J.V.	<u>Mechanical Completion :</u> 28 December 2018 <u>Provisional Acceptance :</u> 16 July 2020 <u>Final Acceptance :</u> Warranty Period Defect Rectification process is ongoing.	Warranty Period ended on 28 December 2021.
Offshore Construction Contract	Offshore	Sapura Kencana Enerji Çözümleri A.Ş.	<u>Mechanical Completion :</u> 16 August 2018 <u>Provisional Acceptance :</u> 5 August 2020 <u>Final Acceptance :</u> Process is ongoing.	Warranty Period ended on 16 August 2020.

Scope	Area	Contractor	Status	Remarks
Stations Construction Contract	Stations	Tekfen İnşaat ve Tesisat A.Ş.	<u>Mechanical Completion(s) for the Station(s) :</u> 27 April 2019 <u>Technical Hand Over(s) for the Station(s) :</u> 30 September 2019 (CS1) 30 September 2019 (CS5) 30 June 2019 (MS3) 30 June 2019 (MS4) <u>Provisional Acceptance for All Stations :</u> 31 October 2019	Extended Warranty Period ended on 31 October 2021.
Telecoms / SCADA EPC Contract	Telecoms / SCADA	ABB Elektrik Sanayi A.Ş	<u>Key Milestone No.9 Provisional Acceptance for Phase 0 with gas with the exception of CS5 Phase 0 scope, PMS, PAS, OTS and ICS System</u> 31 May 2018 <u>Key Milestone No.10 Provisional Acceptance for Phase 1 (including CS5 Phase 0 and CS1 AMC scope)</u> 31 December 2019	Warranty Period ended on 31 December 2021.

4 ACHIEVEMENT OF OBJECTIVES

Many countries in Central and South East Europe are dependent on a single supplier for most or all of their natural gas needs. To help these countries diversify their supplies, the Southern Gas Corridor aims to expand infrastructure that can bring gas to the EU from the Caspian Basin, Central Asia, the Middle East, and the Eastern Mediterranean Basin. Initially, approximately 10.5 billion cubic meters per annum (bcma) of gas is expected to be available for transportation along this route during the Plateau Period commencing on 1st of January 2022 overachieving the value estimated during the appraisal as an indicator of the Project Development Objectives (PDO) as agreed with the WB/IBRD and given below:

Table 1: Actual and Planned Values for PDO-level Indicators

	2018	2019	2020	2021	2022
<i>Target values in Project Appraisal Document</i>					
Diversifying Azerbaijan's Gas Export Markets (bcm/annum)	0.0	0.0	4.0	7.0	10.0
Improving the Security of Turkey's Energy Supply (bcm/annum)	1.0	2.5	4.5	5.0	5.5
Improving the Security of South-East Europe's Energy Supply (bcm/annum)	0.0	0.0	4.0	7.0	10.0
<i>Actual</i>					
Diversifying Azerbaijan's Gas Export Markets (bcm/annum)	0.0	0.0	0.1	8.2	
Improving the Security of Turkey's Energy Supply (bcm/annum)	0.9	2.8	4.7	5.6	
Improving the Security of South-East Europe's Energy Supply (bcm/annum)	0.0	0.0	0.1	8.2	

Source: PAD; TANAP.

As of 31st of December 2021, a cumulative total of 8.14 bcma of gas has been exported from Azerbaijan to new natural gas export markets in South-East Europe. Cumulative total of 13.97 bcm of gas has been delivered to Turkey as of the 31st of December 2021.

Despite its large scope and deep complexities, the TANAP Project was delivered on time and under budget through the application of international project management standards, different methods/techniques and an effective change management system, in which focus was on safety and quality, as well as social, economic and cultural values.

Leading companies in the engineering and construction field took part in the project stages of TANAP, in which high-quality engineering, designs, materials and construction methods were applied. The contracts signed with vendors, contractors and service companies made a considerable contribution to markets. An analysis of the Final Contract prices indicate that the payments made to companies operating in Turkey during the TANAP Project investment period contributed approximately 50% of added value from TANAP Project budget to the domestic market.

The economic benefits of gas supply by TANAP System also include lower gas costs in the importing countries; gas supply security and diversification; employment of about 9,000 people directly and another 5,000 people indirectly through construction, support services, pipe manufacturing and other areas of the project, as well as permanent employment of about 300 people (current 16 bcm/annum phase).

On the 30th of June 2018, TANAP Phase 0 commercial operations commenced with the start of deliveries of natural gas to Turkey and Phase 1 commercial operations

commenced with the start of deliveries of natural gas to Europe on the 31st of December 2020. By achieving these milestones TANAP started providing its transit services to TANAP Shippers and is receiving tariff payments based on the monthly capacity charge in accordance with the gas transportation agreement between the parties. Transit Services for TAP Linefill under CGTA has been successfully completed on 19th of December 2020, which has gained additional revenue by providing transit services under CGTA (TAP Linefill Activities). TANAP Project also delivers Gas to the Shippers on Reasonable Endeavour basis above Daily Reserved Capacity, within technical limits when available, which allows TANAP Project to gain³ additional revenue on top of Monthly Transit Tariff services. The amounts invoiced are as per the forecasted throughputs during feasibility studies.

Also, TANAP System has been operating in a safe manner with 0 LTI (Lost Time Incident Frequency Rate/Target: 0) and 0.2 TRIR (Total Recordable Incident Rate/Target: <0.3) rate since commercial operation start date.

5 LESSONS LEARNED

Capturing lessons learned was an ongoing effort throughout the life of the project. During the closing phase of the TANAP Project lessons learned were captured at the final workshop arranged by participation of key project personnel. The workshop included 5 sessions planned according to the project processes such as initiating, planning, executing, monitoring and controlling and close-out process. All items captured during the workshop were recorded in the Lessons Learned Handbook given in the attachment 1.

Lessons Learned captured during the project lifecycle and final Lessons Learned Workshop conducted on 31st of October 2019 were collated and published in a TANAP Project Lessons Learned Handbook. TANAP Project aims to share this Handbook with all interested and related parties to ensure that TANAP Project's lessons learned contribute not only to our Project Shareholders and Stakeholders, but also to anyone interested and / or involved in Oil and Gas industry as well as in any Project Management activity.

³ As of 31st of December 2021, 1.50 bcm of gas delivery to AGSC was provided on Reasonable Endeavor basis above Daily Reserved Capacity which has gained additional revenue to TANAP on top of Monthly Transit Tariff services.

ANNEX 6. CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS

AIIB

102. AIIB has received the draft version of this ICR and discussed it together with World Bank colleagues as well as TANAP. AIIB also referred to the ICR while preparing their own project Completion Note (PCN) for the TANAP project.

103. No quantitative nor qualitative ratings to the project are foreseen as part of AIIB's PCN preparation and finalization process. This notwithstanding, AIIB fully concurs with the 'Highly Satisfactory' rating assigned by the World Bank, as well as with their overall considerations on project relevance, efficacy, and efficiency. The presentation of project outcomes, evaluation, and lessons learned included in the ICR are in line with AIIB's analysis and assessment and no dissenting opinion has emerged in the context of AIIB's PCN preparation. AIIB's PCN reflects similar views on the project having been able to reach all its project-level results, and all but one intermediate results, meeting and oftentimes exceeding the set targets. The PCN also underscores the high professionalism of the TANAP team in implementing the project, both from a technical and a project management perspective.

104. In addition to lessons learned, as captured in the ICR, AIIB was also interested in taking stock of good practices that emerged during project appraisal and implementation (e.g., robust E&S processes, implementation readiness, etc.), which were well recorded in the ICR.

MIGA

105. On June 27, 2018, MIGA issued \$1.1 billion of guarantees to mobilize financing for SGC, an Azerbaijani State-Owned enterprise and a shareholder of TANAP, in order to transport natural gas from Shah Deniz Gas Field to Turkey and Europe. MIGA's non-honoring of a financial obligation guarantee provided credit enhancement to a pool of commercial lenders, thereby mobilizing private sector financing in both euro and US dollar for a period of 15 years to complete the financing needed for the project. The guarantee holders include AKA Ausfuhrkredit-Gesellschaft mbH, Banco Santander, Citibank N.A., Crédit Agricole Corporate and Investment Bank, ING, LBBW and Société Générale.

106. This transaction is a good showcase of cooperation across the World Bank Group with different members of the Group leveraging their respective strengths to develop a comprehensive solution and generate developmental impact. With regards to the financing, the joint participation of IBRD and MIGA in this project allowed for a larger envelope of financing to be made available to the borrower at competitive terms. Thanks to MIGA's involvement, the World Bank Group solution efficiently blended both public and private sources of financing. Moreover, the IBRD and MIGA teams worked closely together to streamline as much as possible the due diligence process, particularly regarding environmental and social matters, developmental impact analysis and procurement which are all crucial for a project of this magnitude.

ANNEX 7. RESULTS OF POST-RESETTLEMENT IMPACT EVALUATION

108. **During 2021, TANAP conducted a post-resettlement impact evaluation study to assess the outcome of compensation and livelihood assistance received by the affected people and confirm the realization of the objectives set forth in Resettlement Action Plan (RAP) and its addendum.** The study was carried out with help of a team of independent consultants and involved questionnaire telephonic interviews with more than a thousand affected people, 60 Mukhtars as well as detailed field investigations and qualitative interviews.

109. **The evaluation confirms the satisfactory implementation of the agreed actions in RAP including addendum and Livelihood Restoration Plans (LRPs), particularly regarding the key commitments related to mandatory compensation payment under Turkish law.** In addition, measures identified under the RAP Fund have been delivered to supplement compensation for various impacts that were not addressed by Turkish law to meet the lenders resettlement policy requirements. The evaluation observed that the expropriation process was smooth and well managed despite of very large number of affected parcels and usual legal difficulties related to outdated cadastral or land-ownership information. However, few people find it difficult to withdraw compensation from the Banks due to certain restrictions when multiple ownership is involved. Further, agreed livelihood restoration packages have been delivered per the LRPs (people affected by above-ground infrastructure and fishermen) and have generally reached their objective. “Residual” vulnerable people that were identified per the agreed process and supported. In addition, the agreed stakeholder engagement activities have been implemented, with generally satisfactory outcomes resulting in generally smooth project construction and, grievances have been managed and addressed per applicable standards and procedures.

110. **Some of the key survey findings include:** (i) the expropriation process appears to have been properly understood by a large majority of landowners and TANAP’s relationship with affected landowners has been generally assessed to be positive; (ii) While reinstatement of agricultural land is generally adequate in Lots 2, 3 and 4, it was found to be deficient in Lot 1 primarily due to soil and crop conditions and there appear to be a close link with the dissatisfaction of the PAPs due to poor quality reinstatement as stated 55% of the 84 PAPs who had already refused to sign land exit protocol therefore, require an investigation for necessary corrections; (iii) As regards to spending of compensation amount, about one third have spent on productive investments such as purchasing land, livestock and agricultural equipment; (iv) As regards livelihood support, 133 people affected by permanent expropriation have received support for barn improvement, purchase of cattle, fertilizers, fodder, agricultural equipment, setting up of dairy and cash support to elderly and disabled people. The team also assessed that community-based packages like the apple orchard, water system upgrade and livestock health project to support veterinary check and care and distribution of hygiene packages for new born calves were very well received and highly appreciated by the local communities; and, (v) a majority of Mukhtars and affected people state that the overall living standards among those affected by the project and those not affected by the project are more or less similar, but people in Lot-1 felt that the living standards among those not affected by the project is relatively better off compared to the affected people.

111. **As a result, the post-RAP impact evaluation study proposed few corrective measures which TANAP is attending relating to:** (i) facilitating withdrawal of outstanding compensation amounts which requires refreshing awareness of various parties involved, including the designated Bank personnel and local authorities; (ii) attending the outstanding land reinstatement issues, especially in Lot 1; and, (iii) improving the awareness and warnings to the communities on the land use restriction along the pipeline

route during the operation phase to enhance awareness on safety measures and access to grievance mechanism.

ANNEX 8. SUPPORTING DOCUMENTS

- The World Bank: Project Appraisal Document, Report No: PAD1665, 2016.
- Financing Agreement, Loan Number IBRD-86790, 2016.
- Financing Agreement, Loan Number IBRD-86810, 2016.
- Supervision Aide-memoires, 2016-2021.
- TANAP Monthly Project Progress Reports, 2016-2018.
- TANAP Monthly Operational Performance Reports, 2018-2021.
- Implementation Status and Results Reports, 2016-2021.

ANNEX 9. MAP

