SUSTAINABILITY FUTURE GROWTH	TANAP TRANS ANATOLIAN NATURAL GAS PIPELINE PROJECT	TANAP

IESC Remote Monitoring Report February 2022

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HOLDS

No.	Section	Description	Input From	Planned Date

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Acronyms and Abbreviations

AFAD	General Directorate of Disaster and Emergency Management
AGI	Above-Ground Installation
AGSC	Azerbaijan Gas Supply Company Limited
AIIB	Asian Infrastructure Investment Bank
BAP	Biodiversity Action Plan
BOS	Biodiversity Offset Strategy
BOMP	Biodiversity Offset Management Plan
BScm	Billion Standard Cubic Meters
BVS	Black Valve Station
CC	Construction Contractor
CBEMP	Community-Based Emergency Management Plan
CEMS	Continuous Emission Monitoring System
CH	Critical Habitat
CS	Compressor Station
CST	Offtake Compressor Station
EBRD	European Bank for Reconstruction and Development
EEC	European Economic Community
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMP	Environmental Management Plan
EPC	Engineering, Procurement and Construction
EPS	Equator Principles
ER	Emergency Response
ERMP	Employee Relations Management Plan
ERT	Emergency Response Team
ES	Environmental and Social
ESAP	Environmental and Social Action Plan
ESCH	Environmental, Social and Cultural Heritage
ESDD	Environmental and Social Due Diligence
ESHS	Environmental, Social, and Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
EU	European Union
FC	Fully Compliant
FLRP	Fishing Livelihood Restoration Plan
GHG	Greenhouse Gas
GIS	Graphical Information System

H&S	Health and Safety
HR	Human Resource
HQ	Headquarter
HSE	Health, Safety and Environment
IBRD	International Bank for Reconstruction and Development
ID	Information disclosure
IESC	Independent Environmental and Social Consultant
IESCS	IESC Services
IFC	International Finance Corporation
IFI	International Financial Institutions
IMP	Integrity Mapping Platform
IPMT	Integrated Project Management Team
ISO	International Organization for Standardization
IUNC	International Union for Conservation of Nature
JV	Joint Venture
KBA	Key Bird Area
KP	Kilometre Point
KPI	Key Performance Indicator
LAC	Land Acquisition and Compensation
LC	Least Concern
LEP	Land Exit Protocol
LRE	Land Rights Entity
LRP	Livelihood Restoration Plan
MOU	Memorandum of Understanding
MoEU	Ministry of Environment and Urban Planning
MP	Management Plan
MS	Metering Station
MTI	Medical Treatment Injury
MSDS	Material Safety Data Sheet
NEBOSH	National Examination Board in Occupational Safety and Health
NG	Net Gain
NGO	Non-Governmental Organisation
NNL	No Net Loss
NT	Nearly Threatened
OHL	Overhead Transmission Lines
OHS	Occupational, Health and Safety
OP	Operating Policy
OSID	Online Stakeholder Interaction Database
PA	Provisional Acceptance
PAP	Project-Affected Person
PBF	Priority Biodiversity Features
PC	Partially Compliant

PCC	Pipeline Construction Contractor
PEP	Project Execution Plan
PLK	Punj Lloyd – Limak – Kalyon
PPE	Personal Protective Equipment
PR	Performance Requirement
PS	Performance Standard
PTs	Patrolling Teams
PTW	Permit to Work
PWTP	Potable water treatment plants
QHSE	Quality, Health, Safety and Environment
QHSSE	Quality, Health, Safety, Security and Environment
RAP	Resettlement Action Plan
RETIE	RAP End-Term Impact Evaluation
RoW	Right of Way
SARMS	Special Area Reinstatement Method Statements
SCC	Species of Conservation Concern
SE	Stakeholder Engagement
SEP	Stakeholder Engagement Plan
SI	Social Impact
SME	Small medium enterprise
SMP	Social Management Plan
SOP	Standard Operating Procedure
SOW	Scope of Work
SPA	Special Protection Area
SPS	Safeguard Policy Statement
Sustainability	Sustainability Pty Ltd
TANAP	Trans Anatolian Natural Gas Pipeline Project
TAP	Trans Adriatic Pipeline
TPMC	Third Party Monitoring Company
VU	Vulnerable
WHO	World Health Organisation
WB	World Bank
WWTP	Wastewater Treatment Plant

Executive Summary

Sustainability Pty Ltd (Sustainability) is engaged as the Independent Environmental and Social Consultant (IESC) for the Trans Anatolian Natural Gas Pipeline project (TANAP). This risk based, focused remote assessment was implemented as the planned site visit for 2021 was once again unable to be conducted due to COVID-19 risks and COVID-19 travel related restrictions. The remote assessment was not designed nor implemented to assess TANAP against all the requirements of a full site based assessment, and in addition not all TANAP systems and potential impacts were sampled. Finally, although TANAP made extreme efforts to provide evidence of compliance where required, the lack of physical assessment and validation by the IESC in person result in some aspects not able to be 100% validated by the IESC. TANAP and the IESC plan to conduct a site visit in 2022 to validate and close out any aspects not able to be 100% verified during this remote assessment.

The original Project Execution Plan (PEP) described the implementation of the IESC Services for Phase 1 construction works and for operation phase(s) of Phase 0 and Phase 1, which includes assessing the various environmental and social requirements of the International Financial Institutions (IFIs) including World Bank's (WB) Safeguard Policies, TANAP policies and the commitments given in the Environmental and Social Impact Assessment (ESIA) package including the management system documents of both TANAP and its Contractors. The services include the presentation of recommended actions associated with identified non-compliances or areas of improvement.

The PEP presents the implementation arrangements reflected in the IESCS contract, Sustainability's proposal and the outcomes of the Project Kick-Off Meeting.

The PEP has been revised to reflect the changes in the approach for the 2021 monitoring and assessment due to the global impacts of COVID-19 on travel, travel restrictions and general risk exposure of global travel. As with last year's assessment the 2021 IESC assessment was conducted remotely (no IESC members traveled to any TANAP sites) and the IESC has therefore undertaken a risk based, focused assessment. The assessment is still based on appropriate lender codes (FC & PC) and takes into accounts actions completed by TANAP since the last report.

At the time of the monitoring visit (13 – 17 December 2021), the construction phase (Phase 0) of the Project was complete in all Lots and associated Above Ground Installations (AGIs)

Phase 1 Main Stations (i.e. CS1, CS5, MS3 and MS4) were mechanically complete by 27.04.2019 whereas technical hand over dates were 30.06.2019 for MS3 and MS4, and 30.09.2019 for CS1 and CS5. Phase 1 Linefill activities (48inch section) from CS5 to MS4 have been successfully completed as of 15 June 2019. Upon completion of the certification process as per the Joint TANAP-TAP (Trans Adriatic Pipeline) Linefill Procedure, hydrocarbon was introduced into the TANAP-TAP Interconnection Pipeline on 26 of November 2019 and the pipeline was pressurized up to 30 bar on 26 of November 2019. TANAP – TAP Interconnection Pipeline Linefill activity has been completed on 26 November 2019. The Inauguration Ceremony of TANAP Phase 1 was held in Ipsala MS4 site on 30 November 2019. Accordingly, TANAP notified the Shipper that the TANAP system was ready for the commencement of commercial deliveries to TAP by the end of November 2019.

As of 31th of December 2021 a total of 14 BScm of gas has been successfully delivered to BOTAŞ and a total of 8.15 BScm of gas has been successfully delivered to AGSC.

The following sections outline the summary of specific Performance Standards.

PR 1 Monitoring and Reporting

Environmental

Environmental Monitoring and Reporting requirements are defined within the Operations Environmental Monitoring Plan (TNP-PLN-ENV-GEN-008). As well as internal audits/inspections and monitoring, the Project employs a number of external parties to monitor and report on environmental performance. Right of Way (RoW) patrol teams (sub-contracted by Botaş) make regular visual inspections of the pipeline corridor to check for third party infringements, surface conditions and soil erosion. Geo-hazard monitoring is undertaken on an annual basis by the Contractor Temelsu, focused on soil erosion on steep slopes, karstic regions, river crossings and areas where there are landslide risks.

The four Engineering, Procurement and Construction (EPC) Contractors covering each Lot were also required to produce annual Aftercare and Monitoring Reports that highlighted any defects. Owing to the fact that the contractual warranty periods will all have expired at the end of 2021, these Reports will no longer be a requirement. The latest Defects Register available for the Project at the time of the monitoring shows that there are only 4 remaining open defects, all within Lot 4. The IESC is confident that the RoW Patrols and Temelsu Geo-

Hazard surveys are effectively detecting all defects and identifying geo-hazard risks to enable action to be taken in a timeframe commensurate with the level of risk.

PR 2 Labour and Working Conditions

Social

TANAP's operational organisation is in place, alongside appropriate policies, management plans and procedures to recruit, select, manage and support the workforce. Adequate protections for the workforce, including equal opportunity and non-discrimination, are provided for through the Human Resources Management Plan. The TANAP Team is now 342 people, 15% of whom are women.

All construction contractors have been demobilised; the TANAP Lessons Learned Handbook reports that the third party labour auditing that was conducted during construction has been successful in ensuring compliance with local and international labour laws and regulations.

Three contractor worker grievances had been received since the previous monitoring, all of which have been closed.

PR 3 Resource Efficiency, Pollution Prevention and Control;

TANAP has developed environmental Key Performance Indicators (KPIs) for the Operational Phase of the Project, which are defined in the Environmental Monitoring Plan (EMP). The data presented (for Q1 – Q3 2021) indicated that the majority of KPIs have been met and where annual targets for activities have not yet been met, for example in relation to the number emergency drills held and E/S compliance reviews undertaken, exercises are planned during Q4 to ensure that the required number is achieved. However, the KPIs presented to the IESC do not fully align with those listed in the EMP. Furthermore known breaches of wastewater quality threshold values at the MCC as reported by the Third Party Monitoring Consultant Assystem-ENVY were not recorded. As such, it is recommended that TANAP re-considers how information on environmental KPIs is collated and reported to ensure that the requirements of the Operational EMP are being fully met, and that the data reported accurately reflects the findings of all current environmental monitoring results.

There was one minor environmental incident at the MCC relating to an exceedance of threshold limit values for wastewater effluent. As such, an administrative fine was imposed by the Provincial Environment Directorate of the Ministry of Environment and Urban Planning

(MoEU). Immediate actions have been taken in response to the incident and the IESC is confident that further incidents of this nature are unlikely to occur in future.

The other notable incident was the gas leak at BVS5 which resulted in an additional 54.7 kT CO_2 equivalent released into the atmosphere. In response to this incident TANAP notified European Investment Bank (EIB), EBRD, International Bank for Reconstruction and Development (IBRD) and Asian Infrastructure Investment Bank (AIIB) and took all relevant safety precautions before fixing the issues and resuming operations. This gas leak did not result in a significant increase from last year and is well below predicted yearly Greenhouse Gas (GHG) emissions.

Greenhouse gas emissions are being calculated and reported in line with Project commitments. Total GHG emissions for 2020 were 24% lower compared to 2019. This was mainly due to a 65% reduction in vented gas, as in 2019 TANAP performed a range of venting operations due to relief tests, valve tests, inspection vents and equipment changes that were not repeated in 2020.

The relevant Operational Management Plans are in place for the management of waste and hazardous substances/materials. However, it was not possible for the IESC to verify their effective implementation without undertaking a physical site visit.

There may be on-going issues with soil erosion on steep slopes, which necessitate that TANAP maintains its program of regular, risk based monitoring; to ensure that all future geo-hazards are identified and addressed in a timeframe commensurate with the risk to the integrity of the pipeline. The IESC will need to verify soil erosion issues noted during this remote audit through a physical site visit, as it is not possible to ascertain the condition of the RoW with an adequate level of confidence based on photographs provided by a third party.

PR 4 Health and Safety

OHS

The IESC took a focused, risk-based approach to the remote assessment of OHS and OHS was not a core focus of this remote assessment.

TANAP OHS statistics remain industry best practice with only one Medical Treatment Injury (MTI) recorded for the period under review.

The internal audit process was reviewed and frequency of assessments, findings, actions and action register are all very well implemented and managed.

The road safety management initiatives are highly commended as is the level of validation.

The Land Usage Violation Procedure was reviewed as part of this assessment and land usage violations (infringement incidents) will be a focus of the 2022 assessment.

Social

Meetings that had been previously postponed to public disclose the Community-based Emergency Management Plan have been initiated following an incident at BVS05. The incident itself was well responded by the TANAP Social Impact team with respect to communications with community stakeholders. Initial notification was provided by TANAP and the Muhtar within 15-30 minutes, including via the mosque loudspeaker and group phone message, and concluded with a follow up message on completion of incident response. The IESC commends the team for this response, as well as the lessons learned that identified the need to roll out the Community-based Emergency Management Plan immediately. Disclosure has commenced in 55 of 72 AGI-affected settlements, and the IESC recommends a review of the appropriateness of the disclosure materials prior to rollout with pipeline-affected settlements.

Third party monitoring of community health and safety mitigation measures are monitored by third party consultants, Assystem ENVY, whose first review indicated that communities were seeking clarity on the potential effects on human and livestock health and the environment from stack gas emissions from MS1-CS1.

PR 5 RAP and LRP

Social

Expropriation has been completed and all compensation and RAP Fund payments have been made. More than 98% of land parcels have been registered to LRE. Additional land acquisition is ongoing; 6 of 27 requests for acquisition have been assessed as eligible. A survey to assess potential livelihood losses on temporarily rented land has been conducted, and identified landowners/users of 4 of the 71 sampled land parcels with livelihood losses. These have been entered into the grievance management system for rectification.

The RAP End-Term Impact Evaluation (RETIE) (RAP Completion Audit) has, commendably, been implemented and finalised with the majority of corrective actions to be implemented. These relate to: expropriation; reinstatement; land exit; and stakeholder engagement during operations on restrictions and land entry. The IESC notes that implementation has commenced of the corrective actions; these are scheduled to be implemented until 2023 in line with TANAP priorities.

In addition to the externally conducted RETIE, TANAP identified two key successful aspects of land access and livelihoods program, specifically, design and implementation of the LPRs and of the RAP Fund. The IESC commends this Lessons Learned process, including that experiences in RAP implementation have been shared in various public forums.

PR 6 Biodiversity conservation and sustainable management of living resources

To date TANAP has continued, as recommended by the IESC's audit in 2018, its monitoring of high-risk areas along the OHL to identify risks to bird species form the OHL operation. TANAP is required to make a decision on additional impact mitigation measures for potential bird impacts from the OHL, but for now has chosen to undertake further monitoring in 2022. Other than this, the Project's operations potential impacts to biodiversity, and impact mitigation measures have been included in the Ecological Management Plans, which is based on the pipeline ESIA, and Biodiversity Action Plan (BAP) requirements for critical habitat areas and Species of Conservation Concern (SCC). TANAP has undertaken a lot of baseline work in 2021 for the proposed offset projects (forest and steppe) and is progressing with the Site Specific Offset Management Plans (expected Q2 2022) for the residual impact offset.

The post-construction biodiversity monitoring requirements are specified in TANAP"s Operations Environmental Monitoring Plan, which details all environmental monitoring and audit requirements and roles and responsibilities involved parties. The operations biodiversity monitoring works have been undertaken by construction contractors for their respective LOTs and the independent monitoring consultant Assystem-ENVY for the entire length of the pipeline. Although the monitoring efforts are completed as required by the TANAP's requirements, the IESC noted some conflicting findings between the different monitoring contractors' findings during the 2020 IESC review. However, for this report, as some of the surveys have been undertaken out of season (October) it has not been possible to cross reference the data, as surveyors would not be expected to identify all of the CH target species at this time of year. It is therefore important for TANAP to ensure that surveys

are undertaken at the correct/optimal time of year. The aftercare period has now been completed; therefore, this is less likely to be an issue going forward.

Assystem-ENVY's 2021 Botanical report: ASE-REP-ENV-GEN-062-P4-C did not include a survey or description of invasive species. If present these species should be logged in the TANAP's Action Tracking System. The report did not provide any information on incursions into Critical Habitat areas either, something which was flagged during the 2020 IESC review. Again any such incursions would need to be logged so that they can be resolved appropriately.

The Site-specific Biodiversity Offset Management Plans are still in the process of being written. These should be completed and published for review (by the IESC team) at the earliest opportunity in 2022. The BAP will also be updated by TANAP in 2022, and so will also need to be reviewed.

PR10 Stakeholder Engagement and Disclosure

COVID-19 continues to somewhat limit engagement with stakeholders using traditional methods and approaches, however the updated SEP with guidance on engagement and information disclosure during the pandemic documents practices being successfully implemented by TANAP during this period. Updates to communities on the current TANAP social impact team and their contact details have been distributed (as a RETIE recommendation), and ongoing informative meetings are being delivered (predominantly) by phone. Engagement KPIs are being exceeded in the previous quarter.

Third party monitoring has commenced for the operations phase, carried out by consultant, Assystem-ENVY, on operational delivery of engagement, grievance management and community health and safety commitments. Their review is being considered by TANAP; an update is anticipated at the next IESC monitoring.

Land Access Management Procedure (Land Entry, Land Exit and Compensation) is being implemented, guiding additional land acquisition, land delivery, land entry, land exit and payments to be made during operation phase for any construction and maintenance activities. Specific stakeholder engagement requirements in the procedure are the responsibility of the Social Impact team during this phase of the project.

Grievance KPIs are slightly below target for the most recent quarter; 62 of 78 open grievances relate to reinstatement and 35 of these are overdue. The IESC notes challenges

in implementing agreed actions for reinstatement-related grievances during unsuitable weather conditions.

A new database has been purpose built to manage grievance tracking, EBA, which will be expanded in 2022 to also include tracking of stakeholder engagements.

TANAP's Annual Stakeholder Engagement meeting was held in February 2021 and will be repeated - with improvements in format, target messages and cross-department speakers - as an online event for 2022. The IESC commends the Social Impact team on their ongoing efforts in continuous improvement.

Summary of concerns and recommendations

The following table outlines the key findings and recommendations of this report. The Table includes 14 open items with recommendations. These items are fully explained in the relevant sections. The first column of the table shows the reference number as X.Y where X is the PR number and Y is the issue number. The reference number is followed by the section in which the issue is expanded upon.

Table 1 - Summary Findings

Ref	Description of Issue	Recommendation (action)	Compliance Category	Commitment	Status
1.1 (2.3.4)	The EMP does not include annual geo-hazard monitoring that is undertaken by the external contractor (SME) Temelsu.	It is recommended that the EMP is updated to incorporate on-going geo-hazard monitoring under the Physical Monitoring section.	FC	PS1	Open
1.2 (2.3.4)	The EMP does not define what a non-conformance is, however, it is assumed that non-conformances do not include identified defects as a significant	It is recommended that TANAP revises the EMP to incorporate a clear definition of what a non-conformance does and does not relate to.	FC	PS1	Open

Ref	Description of Issue	Recommendation (action)	Compliance Category	Commitment	Status
	number of defects have been detected.				
1.5 (2.6.6)	A review of the definition of AGI-affected settlements is under consideration (i.e. this is a suggestion not a non-compliance)	Any change in definition would trigger a Management of Change process to update project documentation	FC	PR 1	Open
3.1 (2.4.2)	KPIs presented to the IESC do not align with those included in Appendix 2 of the TANAP Operational Environmental Monitoring Plan. Breaches of wastewater quality threshold values identified by ENVY are not captured as non-conformances under the relevant KPI as presented.	It is recommended that TANAP re-considers how information on environmental KPIs is collated and reported to ensure that the requirements of the Operational Environmental Monitoring Plan are being fully met, and that the data reported accurately reflects the findings of all current environmental monitoring results.	FC	PR 3	Open
4.1 (2.6.6)	There is evidence of a potential gap in information disclosure with seasonal residents / where the Muhtar signed off on Land Exit forms.	TANAP to share directly the safety zone and other emergency response information with seasonal residents, as far as practicable.	PC	PR 1; PR 4	Open

Ref	Description of Issue	Recommendation (action)	Compliance Category	Commitment	Status
6.1 (2.10.2)	It is understood that to keep the BAP current, it will be reviewed in 2022, and retained as a document to inform the measures needed if and ongoing or new construction activities are required during the operational phase	While the need to review the BAP is not considered a compliance issue, IESC recommends that the BAP is reviewed as soon as possible, and that TANAP document all plan reviews and keep document revision controls updated for tracking.	FC	PR6	Open
6.2 (2.10.5)	The bio-restoration of Lot 1 – 4 is now completed, and generally meets targets set in the BAP. In a few locations, the targets aren't yet met; but monitoring and remedial activities will be ongoing undertaken by RoW team reporting to TANAP.	TANAP have informed that IESC that ongoing monitoring will continue, with the RoW team patrolling the pipeline and reporting on areas where remedial measures are considered necessary, or where incidents have occurred. This should continue for the lifetime of the project	FC	PR6	Open
6.3 (2.10.5)	The BAP has been implemented across the Project and the CH restoration is generally meeting targets	TANAP to continue monitoring and implement remedial actions as required.	FC	PR6	Open
6.5 (2.10.6.3)	To date the biodiversity offset projects activities are progressing despite COVID-19 restrictions.	TANAP have informed the IESC that the site-specific management plans will be made available by April 2022	PC	PR6	Open

Ref	Description of Issue	Recommendation (action)	Compliance Category	Commitment	Status
	TANAP have stated that the Site-Specific Offset Management Plans will be prepared and pushed out for review by Q2 2022. These plans will be key for understanding the likely success of implementation and should contain clear KPIs or monitoring matrices. The success of the biodiversity offset projects is key for achieving Net Gain for biodiversity.	for review. They will be developed based on the findings of the 2021 surveys as well as feedback that has been provided previously during the 2020 review. Full comment will be made on the site specific offset management plans once they have been issued for review.			
10.1 (2.9.1)	Third party monitoring of community health and safety measures indicate concerns about stack gas emissions and their impact on beekeeping.	TANAP to register these through the consultation register and manage these concerns through the stakeholder engagement process.	PC	PR10 / Stakeholder Engagement Plan	Open
10.2 (2.9.2)	35 of 62 open grievances relate to reinstatement and are overdue; 30 of these are in a 'waiting' category where an approach has been agreed with the complainant but cannot yet be	TANAP to update the Grievance Management Procedure to reflect the 'waiting' status (with appropriate checks and balances to document what actions have been agreed with the complainant).	PC	PR10 / Grievance Procedure	Open

Ref	Description of Issue	Recommendation (action)	Compliance Category	Commitment	Status
	implemented due to weather conditions.				

1. Introduction

1.1 Project Context

TANAP Doğalgaz İletim A.Ş. (TANAP) has engaged Sustainability Pty Ltd (Sustainability) for the delivery of Independent Environmental, Social and Occupational Health and Safety Monitoring and Consultant Services (IESCS) for the Trans Anatolian Natural Gas Pipeline (the Project), effective of 24 July 2018. The first IESCS monitoring visit undertaken for this assignment occurred in Turkey from 8 - 12 October 2018. This report presents the findings of the fifth monitoring event of the assignment which was a remote assessment completed from 13 – 17 December 2021 due to COVID-19 travel restrictions. Sustainability had previously been engaged by the EBRD as the Independent Environmental and Social Consultant to support financing requirements and had completed environmental and social due diligence in 2016 and four previous annual monitoring visits from 2017 – 2020.

The TANAP Project had planned to deliver a 1,811km pipeline to facilitate the transport of natural gas produced from the Shah Deniz Phase II development in Azerbaijan to Turkey and Europe. The Project has been developed by a group of shareholders who currently comprise of “Southern Gas Corridor” Closed Stock Joint Company (51%), BOTAS (30%), BP (12%) and SOCAR Turkey Enerji A.S. (STEAS) (7%) and are herein referred to collectively as the “Sponsors”.

The Project runs from the Georgian border, beginning in the Turkish village of Türkgözü in the Posof district of Ardahan, and passes through 20 provinces, ending at the Greek border in the Ipsala district of Edirne. Two off-take stations are located within Turkey for national natural gas transmission, one located in Eskişehir and the other in Thrace. With 19km running under the Sea of Marmara, the main pipeline within Turkey reaches a total of 1,811km, along with off-take stations and above-ground installations.

TANAP was planned to be developed in phases, as defined below. It has completed Phase 1 construction.

- Phase 0: Initial phase of operation, 6bcma capacity of Shah Deniz 2 by mid-2018 has been available to BOTAS through the 56” pipeline section through the Eskisehir Off-take. Mechanical completion of Phase 0 was completed in Q4 2017. The Phase 0 facilities have been operational since mid-2018.

- Phase 1: To meet the total throughput of 16 bcma, 10 bcma of which is to be used to transport the Shah Deniz gas to Europe, the operation of 48" section of the onshore pipeline and the two compressor stations (CS-1 and CS-5) are required. The Phase 1 facilities became ready in 2019 and started physical commercial gas deliveries on 31 December 2020.

A Project Execution Plan describes the implementation of the IESC assessments for Phase 1 construction works and for operation phase(s) of Phase 0 and Phase 1, which includes assessing the various environmental and social requirements of the International Financial Institutions (IFIs) including World Bank's (WB) Safeguard Policies, TANAP policies and the commitments given in the ESIA package including the management system documents of both TANAP and its Contractors. The services include the presentation of recommended actions associated with identified non-compliances or areas of improvement.

This PEP presents the implementation arrangements reflected in the IESCS contract, Sustainability's proposal and the outcomes of the Project Kick –Off Meeting. The objective of the PEP is to both guide implementation and communicate the delivery approach to the key stakeholders. The PEP is adaptive and will be revised as required to ensure effective delivery of services.

1.2 Scope of Work and Objectives of the IESC

The scope of the IESC's activities is specific to Phase 1 construction works and for operation phase(s) of Phase 0 and Phase 1. The services require an independent assessment of the Project's compliance with relevant local and international legal requirements, the various environmental and social requirements of the International Financial Institutions (IFIs), TANAP policies and the commitments given in the ESIA package including the management system documents of both TANAP and its Contractors. The services include the presentation of recommended actions associated with identified non-compliances or areas of improvement.

The key objectives are to:

- Provide an independent assessment of the Project's compliance with Project commitments, including relevant local and international legal requirements and IFIs' Standards, Requirements and Guidelines; and

- Present recommended actions associated with identified non-compliances or areas of improvement.

To achieve these objectives, the IESC undertakes the role of identifying, monitoring and verifying:

- The implementation of specific provisions, commitments and the overall objectives of the Project ESIA, BAP, BOS, SEP, RAP, LRPs and other related Project documents;

- Implementation of mitigation measures, as documented in the Commitments Register, Environmental and Social Management Plans, Health and Safety Plans and relevant procedures to address material risks and issues associated with Phase 0 operations and Phase 1 construction works and operations;

- Material changes in design and operations, which have been issued and assessed in line with the Environmental Management of Change Procedure (TNP-PCD-ENV-GEN-002); and

- The implementation of Legal, Political and Institutional framework as presented in Chapter 4 of ESIA Report (TNP-REP-ENV-GEN-002) considering the current updates and relevant IFIs' Standards, Requirements and Guidelines.

It is important to note that the remote assessment does not allow the TANAP Project to be reviewed/monitored against all relevant local and international legal requirements and IFIs' Standards, Requirements and Guidelines. The purpose of the remote assessment is to provide an update on compliance requirements and will include a validation site visit in 2022, and it will be reported at the time of reporting of 2022 Monitoring Visit.

1.3 Project Status

At the time of the monitoring visit (13 – 17 December 2021), the construction phase (Phase 0) of the Project was complete in all Lots and associated AGIs (Above Ground Installations). Phase 1 Main Stations (i.e. CS1, CS5, MS3 and MS4) were mechanically complete by 27.04.2019 whereas technical hand over dates were 30.06.2019 for MS3 and MS4, and 30.09.2019 for CS1 and CS5. Phase 1 Linefill activities (48 inch section) from CS5 to MS4 have been successfully completed as of 15 June 2019. Upon completion of the certification

process as per the Joint TANAP-TAP Linefill Procedure, hydrocarbon was introduced into the TANAP-TAP Interconnection Pipeline on 26 of November 2019 and the pipeline was pressurized up to 30 bar on 26 of November 2019. TANAP – TAP Interconnection Pipeline Linefill activity has been completed on 26 November 2019. The Inauguration Ceremony of TANAP Phase 1 was held in Ipsala MS4 site on 30 November 2019. Accordingly, TANAP notified the Shipper that the system was ready for the commencement of commercial deliveries to TAP by the end of November 2019.

A summary of milestone events is outlined below:

Phase 0

- 1338.85 km of 56” pipeline completed
- 39 Block Valve Stations (BVS) completed
- 6 Pig Stations (PS) completed
- 2 Metering Stations (MS) completed
- 1 Offtake Compressor Station (CST)
- Inauguration Ceremony of TANAP Phase 0 was held in Eskişehir CS5-MS2 site on 12 June 2018.
- Gas to Eskişehir facilities (1338.85 km long 56” dia P/L + MS1 + MS2 + 39 BVSs + 6 PSs + CS5 L) are commercially operational as of 30 June 2018.
- BOTAS Second Contract Year was successfully completed by 30 June 2020 with 100% operational efficiency.

Phase 1

- Gas to Europe facilities (incorporating 454.04 km long 48” diameter pipeline and 18.78 km long 2 x 36’’ diameter offshore pipelines, MS3 + MS4 + 10 BVSs + 5 PSs + CS1 + CS5); all Metering, Block Valve, Pigging and Compressor Stations were mechanically complete as of 28 December 2018.

- TANAP and TAP pipelines connected.
- TANAP-TAP Interconnection Pipeline cleaning pig activity completed on 21st June 2019.
- TANAP-TAP interconnection pipeline was purged with N2 and filled with hydrocarbon on 26 October 2019.
- Phase 1 Linefill activities (48inch section) from CS5 to MS4 have been successfully completed as of 15 June 2019.
- Offshore Pipeline Construction
    - 2 parallel 36” offshore pipelines completed
    - 4 Fibre Optic Cables completed
    - 24 Crossings completed
- Phase 0 and Phase 1 facilities have been handed over to TANAP Operations and have implemented the following Control of Work operational procedures as of 28 October 2019:
    - Operations Permit to Work;
    - Energy Isolation; and
    - H&S Risk Assessment and Management.
- TANAP provides transit services for TAP Pipeline Linefill and Commissioning activities since 06 February 2020 under TAP Pipeline Linefill and Commissioning Framework Agreement dated 02 December 2019
- Commercial Operations for Phase 1 started as of 31 December 2020.
- As of 31th of December 2021 a total of 14 BScm of gas has been successfully delivered to BOTAŞ and a total of 8.15 BScm of gas has been successfully delivered to AGSC.

1.4 Applicable Project Standards

International Lender Financed Projects are expected to be designed and operated in compliance with good international practices relating to sustainable development. TANAP adhere to relevant IFIs' Standards, Requirements and Guidelines including:

IFC Performance Standards (2012)

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts;
- Performance Standard 2: Labour and Working Conditions;
- Performance Standard 3: Resource Efficiency and Pollution Prevention;
- Performance Standard 4: Community Health, Safety, and Security;
- Performance Standard 5: Land Acquisition and Involuntary Resettlement;
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources; and
- Performance Standard 8: Cultural Heritage.

IFC Environmental, Health and Safety (EHS) Guidelines, including EHS General Guidelines (2007)

EBRD Environmental and Social Policy and Performance Requirements (2014)

- PR1 – Assessment and Management of Environmental and Social Impacts and Issues;
- PR2 – Labour and working condition;
- PR3 – Resource Efficiency, Pollution prevention and Control;
- PR4 – Health and safety;
- PR5 – Land acquisition, involuntary resettlement and economic displacement;

- PR6 – Biodiversity conservation and sustainable management of living resources;
- PR8 – Cultural heritage; and
- PR10 – Information disclosure and stakeholder engagement.

World Bank Safeguard Policies

- OP 4.01 Environmental Assessment;
- OP 4.04 Natural Habitats;
- OP 4.09 Pest Management;
- OP 4.36 Forestry;
- OP 4.11 Physical Cultural Resources; and
- OP 4.12 Involuntary Resettlement.

Equator Principles (2013)

- Principle 1: Review and Categorisation;
- Principle 2: Environmental and Social Assessment;
- Principle 3: Applicable Environmental and Social Standards;
- Principle 4: Environmental and Social Management System and Equator Principles Action Plan;
- Principle 5: Stakeholder Engagement;
- Principle 6: Grievance Mechanism;
- Principle 7: Independent Review;
- Principle 8: Covenants;
- Principle 9: Independent Monitoring and Reporting; and

- Principle 10: Reporting and Transparency.

As noted in the executive summary and Section 1.2 of this report, the remote focused assessment undertaken did not assess the against all of these requirements, but was a risk based sample of TANAP systems, potential impacts and controls as well as a sample of specific requirements.

1.5 Sources of Information

For the remote monitoring assessment a document review component and online interviews with PAPs were included as part of the IESC assessment. Key documents were supplied by TANAP including presentations to specialists at Sustainability. Further documentation was provided immediately following the presentations as requested by the IESC team to allow clarification and of the presented material. The primary sources for information accessed for this IESCS review included, but was not limited to:

- Presentations prepared by TANAP teams focused on Project Overview, Environment, Social, OHS and RAP & LRP
- Project ESIAs produced for the Project including the information prepared for the trans-boundary notification and consultation;
- Supplementary environmental and social assessments undertaken in accordance with Project management of change processes;
- Construction and Operational Phase Environmental and Social Management Plans (ESMPs) and relevant additional specific plans including the Stakeholder Engagement Plan (SEP);
- Other relevant Health, Safety, Environmental and Social materials including HSE statistics, incident reports, external monitoring reports and audits, surveys, grievance registers and additional assessments;
- Environmental and social monitoring reports completed by Construction Contractors, third party monitoring service providers and TANAP;
- Information regarding Project progress and performance in the public media including newspaper articles, TANAP website and information published from stakeholders;

- Information from site inspections and interviews with TANAP personnel, Contractors and stakeholders;
- Relevant Land Acquisition and Compensation (LAC) and Resettlement Action Plan (RAP) documentation including Resettlement Action Plan End Term Impact Evaluation (RETIE) Report and Grievance Management Procedure (TNP-PCD-SOC-GEN-001);
- Patrolling reports, Aftercare Monitoring Reports, Training Records, letters and other documents outlining the environmental monitoring of sites during the operational phase;
- Environmental and Social Management Systems (ESMS) for the operating phase including environmental social and H&S procedures.
- Remote/VC interviews with Project Affected Persons (PAPs); and
- Monitoring reports from previous years as well as an Action Update Status document provided by TANAP outlining progress on previous recommendations.

For this assessment OHS, environmental and biodiversity monitoring was undertaken as using document review, presentations and photographic evidence. Social monitoring was undertaken as a document review, presentation, photographic evidence and video calls with PAPs.

1.6 Remote Assessment Attendance

The Remote assessment was conducted from the 13 to 17 December 2021 by the IESC, TANAP and EBRD. The team members of the IESC were:

- Heath Thorpe: Independent Consultant Team Project Director and OHS Specialist;
- Claire Penny: Independent Consultant Team Environmental Specialist;
- Nicola Faulks: Independent Consultant Team Biodiversity Specialist;
- Amy Sexton: Independent Consultant Team Social, labour and Cultural Heritage Specialist; and
- Aleksa Marinovic: Independent Consultant Team Environmental and Project Administration.

1.7 Remote Assessment Schedule

In summary, the following activities were undertaken during the remote assessment:

DAY - 1	December 13, 2021 **Monday**	
Sessions	**SCOPE**	**Duration**
Welcome & Opening	Opening speeches Approach/methodology and focus of this Remote Monitoring	30 Minutes
Overall Progress	Safety Moment Overall updates (Works in Operation Phase) (TANAP Lessons Learned & Completion R.)	 1 hour
DAY - 2	December 14, 2021 **Tuesday**	
SEIP updates	Organizational Structure and R&R Update on Planned and Ongoing activities during the Operation Phase	 1 hour
Integrity Management (O&M)	Overall Approach and Scope Organizational Structure inc. Contractors Detailed Work Progress particularly on Patrolling, Geo-hazard, IMP & Aerial Survey	 1.5 hours
DAY - 3	December 15, 2021 **Wednesday**	
SOC updates (including RAP)	Organizational Structure and R&R	

	SE practices including revised GRM Operation Phase Social Monitoring Land Acquisition and Budget updates RAP End-Term Impact Evaluation	2 hours
OHS updates	Organizational Structure and R&R HS figures update including sites Safety measures in Operation and during ongoing COVID-19 outbreak	 1 hour
DAY – 4	December 16, 2021 **Thursday**	
Phone Interviews with PAPs	Interviews with: - Landowner (reinstatement/Slope breaker) - Muhtar of Catak village (BVS05 Gas Leakage) - Muhtar of Bugdayli village (LU violation)	 1.5 hour
ENV updates	Organizational Structure and R&R Update on environmental performance Environmental monitoring findings	 1 hour
Special Session on Biodiversity	Update on BOMP	1 hour
Additional Info on BVS-05 Gas Leak	Further detail on gas leak incident management.	30 minutes
DAY – 5	December 17, 2021 **Friday**	

Close-out	Overall Assessment with Preliminary Findings of IESC and Next Steps	1.5 hours

1.8 Report Limitations and Assumptions

General

The remote assessment was not designed nor implemented to assess TANAP against all the requirements of a full site based assessment, and in addition not all TANAP systems and potential impacts were sampled. Finally, although TANAP made extreme efforts to provide evidence of compliance where required, the lack of physical assessment and validation by the IESC in person result in some aspects not being able to be 100% validated by the IESC. TANAP have agreed that the 2022 site visit by the IESC will be used both as a normal site assessment and also to close out any aspects not able to be 100% verified during this remote assessment.

OHS

The OHS assessment was a risk based sample and completely retrospective, i.e. there was no assessment of conditions in the field or people working in the field. This will be undertaken in the 2022 site visit.

Environment

The assessment of the effectiveness of third party company geo-hazard monitoring has been based on a limited sample of survey findings that were selected by the TANAP Project team and included no examples of High risk level sites. As such they may not be representative of the Project as a whole. It will be necessary to undertake a physical site visit to observe a wider range of sites of with different risk levels to verify whether geo-hazard monitoring is effectively helping to ensure the integrity of the pipeline.

The audit in relation to soil-erosion on steep slopes has been reliant on photographic evidence only. As such, it is not possible to draw conclusions regarding the on-going effectiveness soil erosion control measures that have been implemented with an adequate level of confidence. A physical site visit is necessary to observe the condition of steep slopes

in a sufficient level of detail to verify that soil erosion issues are being adequately identified and addressed.

It was not possible to verify TANAP's compliance with the Operations Phase Pollution Prevention Plan or Waste Management Plan in relation to hazardous materials and waste/hazardous waste management without conducting a physical site visit.

Social

There were some limitations to a virtual visit. For social issues, no physical presence on site limited the ability to:

- See employees at work and PAPs on land plots to verify verbal and non-verbal responses obtained through interviews carried out via video calls;
- Pursue follow-up lines of questioning based on site inspection;
- Seek clarifications with interviewees or other TANAP staff outside the formal interview environment;
- Ensure audible, clear and uninterrupted interviews due to technology/connection limitations; and
- Confirm community health safety and security measures.

However, the IESC thanks TANAP for supporting the virtual visit and providing a best available alternative to 'meet' with employees and PAPs via video call/conferencing facilities.

2. Findings and Observations

2.1 Classification Criteria for Review Findings

Project compliance and performance against the applicable Standards was considered by the IESC in terms of material risk to the Project and the IESC's confidence in the assessment of compliance following review of information available. The compliance classification of each topic will be determined as outlined in Table 2.

Table 2: Compliance Classification

NOP	**No Opinion Possible:** The IESC was not able to determine an opinion e.g. the topic was not a focus of the audit; due to a lack of information; the inability to remotely visit a certain site; or the specific stage the Project is at.
Level of Non-Compliance (NC):	
EC	**Exceeding Compliance:** The Project has gone beyond the expectations of relevant IFI requirements / standard / principle. IFIs should be able to use projects rated EC as a role model for positive Environmental and Social effects.
FC	**Fully Compliant:** The project is fully in compliance with relevant IFI requirements / standards / principles, and local environmental, health and safety policies and guidelines.
PC	**Partially Compliant:** The project is not in full compliance with relevant IFI requirements / standards / principles, but has systems, processes or mitigation measure in place which are working towards addressing the deficiencies.
MN	**Materially Non-Compliant:** The project is not in material compliance with relevant IFI requirements / standards / principles, and the systems, processes and mitigation measures in place are not working towards addressing the deficiencies.

2.2 Environmental, OHS and Social Review

This Monitoring Report documents the findings and observations resulting from the remote assessment from 13 - 17 December 2021 as they were noted during the various presentations. This report also factors in the review of recently drafted ESCH documentation and construction environmental and social management plans and procedures.

A summary of the classification of Project compliance with the Applicable Standards that has been allocated to each topic is presented in Table 3 below.

It is important to note that the robustness against the compliance levels below are commensurate to the type of assessment undertaken (remote, risk based sample).

Table 3 - Project Compliance with the Applicable Standards

Topic Heading	Compliance Criteria
Environmental and Social Assessment	
Compliance with Local Legislation	FC (where sampled)
Status of ESAP	FC
Environmental and Social Assessment	FC
Environmental and Social Policy	FC
Environmental and Social Management System	FC
Organisational Capacity and Commitment	FC
Project Monitoring and Reporting	FC (subject to verification in the field)
Assessment and management of Change	FC
Labour and Working Conditions	
Human Resource Policies and Working Relationships	FC
Protecting the workforce	FC
OHS	FC (subject to verification in the field)
Retrenchment	FC
Grievance mechanism	FC
Security Personnel Requirements	NOP
Resource Efficiency and Pollution Prevention	
Resource Efficiency	NOP
Pollution Prevention and Control	FC (subject to verification in the field)
Greenhouse Gases	FC
Hazardous Substances and Materials	NOP
Community Health Safety and Security	
Infrastructure, Building, and Equipment Design and Safety	NOP
Hazardous Materials Safety	NOP
Traffic Safety	NOP
Exposure to Disease	NOP
Natural Hazards	NOP
Emergency Management	PC
Land Acquisition, Involuntary Resettlement and Economic Displacement	
Consultation	FC
Compensation	FC
Grievance	FC
Resettlement and Livelihoods Planning and Implementation	FC
Monitoring	FC
Biodiversity	
Assessment and Identification of Impacts	PC
Biodiversity Management Planning	FR
Implementation of Mitigations	FC
Conservation of Biodiversity	FC
Restoration and Rehabilitation	PC
Monitoring	FC
Cultural Heritage	
Assessment	NOP
Consultation	NOP
Disclosure and Stakeholder Engagement	

Stakeholder Engagement Planning	FC
Grievance management	PC
Information Disclosure	FC

2.3 Environmental and Social Assessment

2.3.1 Environmental and Social Policy

TANAP's Integrated Management System Policy can be found online[1] specifying the company's higher level commitments to health, safety, the environment and communities, to be managed through an ISO-compliant management system. Additionally, the Social Policy[2] remains a publicly disclosed document reflecting the commitment to effective management of community relations and grievance management, meeting current best industry practices during operations. Training is to be provided to employees and contractors on the Social Policy. The Policy can also be found on the TANAP website[2].

2.3.1 Environmental and Social Management System

All relevant environmental Plans and Procedures for the Operations phase have been developed and are being implemented by TANAP (including the Pollution Prevention, Environmental Monitoring and Waste Management Plans). There are some outstanding recommendations from the previous monitoring relating to the Environmental Monitoring Plan, please see Section 2.3.3.1 of this Report.

TANAP's social management and monitoring plans are in place for the Operations phase. These include: the Social Action Plan for Operations; the Social Monitoring Plan for Operations; Stakeholder Engagement Plan (and associated annexes); and Grievance Management Procedure. The Operation Phase Land Access Management Procedure (Land Entry, Land Exit and Compensation) is the key procedure now in place for land access. The RAP End-Term Impact Evaluation (RETIE, see Section 2.7.5) has been completed.

2.3.2 Organisational Capacity and Commitment

2.3.2.1 Environment

As illustrated in Figure 2.1 the TANAP Environment Department is overseen by the QHSSE Director. The Environment Manager reports directly to the QHSSE Director and is responsible for three Senior Environmental Engineers based in Ankara. In addition, there are environmental personnel based at the various operational Stations (CS1/MS1, CS3, MCC, CS5/MS2 and MS3&MS4), who whilst reporting administratively to the site managers, functionally also report to the Environment Manager.

[1] https://www.tanap.com/tanap-project/integrated-management-system/
[2] https://www.tanap.com/tanap-project/social-policy/

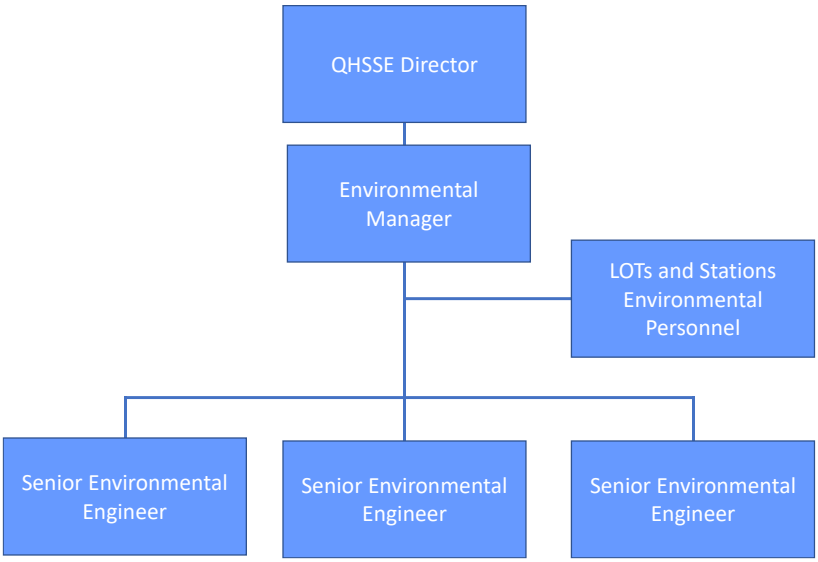

Figure 2.1: Environment Department Structure

As construction activities are now 100% completed, there are no environmental personnel based in any of the Lots. Both the QHSSE Director and Environment Manager have been retained as the Project has transitioned from the Construction to the Operations Phase. This has ensured the transfer of important Project knowledge and experience.

The QHSSE Engineers based at the stations are responsible for the effective implementation of all relevant QHSSE policies and procedures, managing HSE risks, and undertaking regular inspections and audits of HSE performance and recording any non-conformances. This includes overseeing any environmental monitoring activities at the stations.

2.3.2.2 OHS

The QHSSE department structure is noted in Figure 2.2 below.

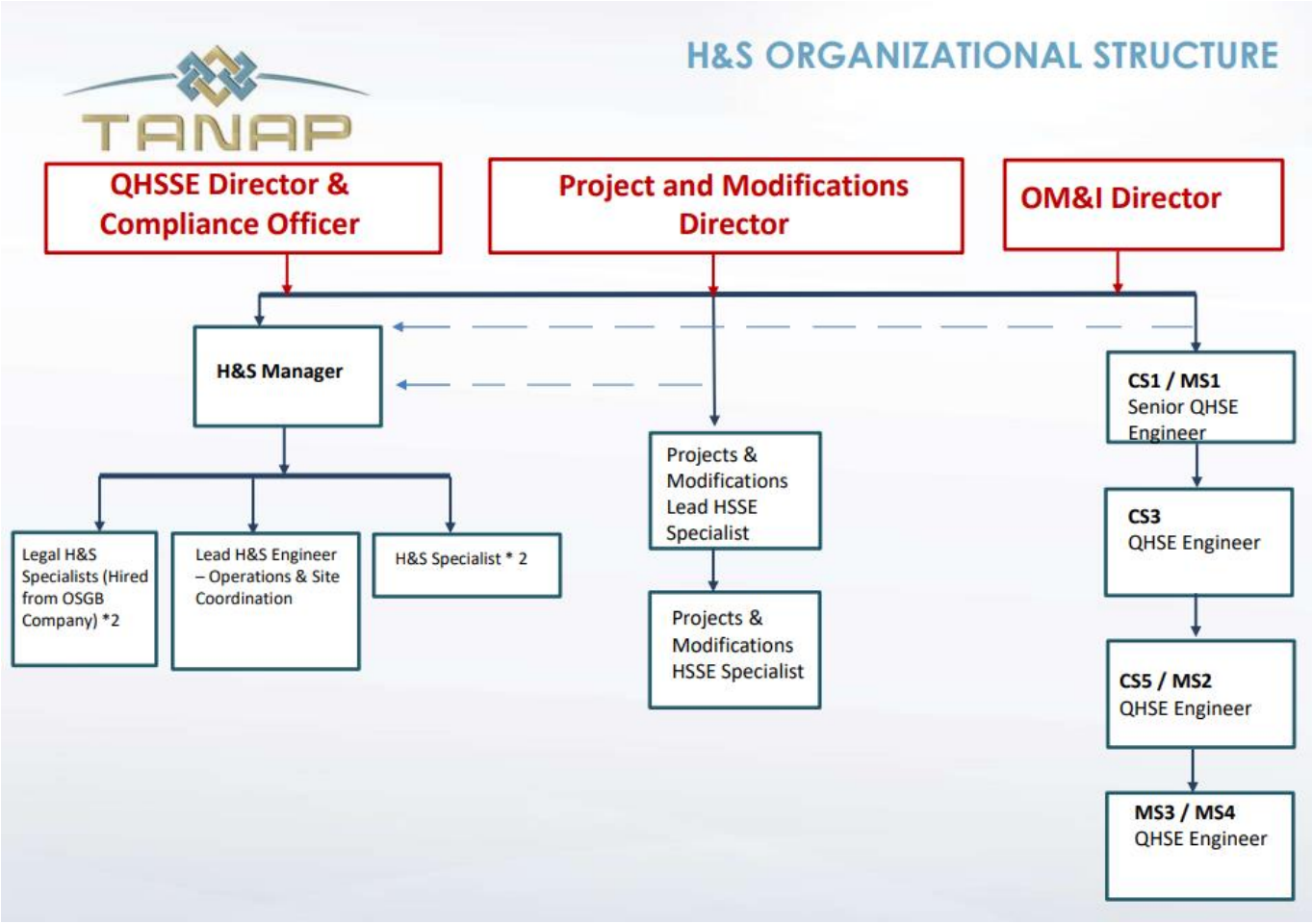

Figure 2.2 QHSSE structure

The QHSE Engineers have received formal and hands-on training across a significant number of OHS aspects including:

- Working at heights
- Energy isolation authority
- Confined space entry
- Nitrogen awareness
- Lifting activities

In addition to the OHS capacity in the QHSE engineers, there is process safety competence in the Operations and Maintenance team, which is vital in an operational plant.

2.3.2.3 Social

The Social team is now complete with a fourth site-based team member being appointed and on boarded since the previous audit.

The Social team sits under the QHSSE directorate, reporting to the QHSSE Director and Compliance Officer. The Ankara-based Social Impact Manager has direct reports from the two Ankara-based social impact specialists and the four site-based team members, each based at an AGI at strategic locations along the pipeline.

The site-based MS3/MS4 position was filled in September 2021 and sound and well-supported processes were described for the incumbent's induction and training. Capacity building for all site-based Social Impact specialists has also been conducted in 2021, covering the new grievance management system (see also Section 2.9.2), and the processes for managing operations phase land access and for reinstatement-related grievances.

2.3.3 Project Monitoring and Reporting

The IESC requested a copy of the latest Report following TANAP's internal QHSE Audit of Planning and Performance Management. These audits are conducted to verify whether the correct controls are in place to ensure compliance with the related standards and specified requirements within TANAP's Operations documents and to identify any areas for improvement. The latest audit was conducted from 21-25 June 2021. Positive findings of the audit included that:

- Department Key Performance Indicators and associated targets have been specified and monitored regularly in order to identify and mitigate any negative trends on a timely basis. All Targets have been achieved or exceeded for the 1st Quarter of 2021.
- Training requirements have been identified and communicated with the Human Resources Department and all mandatory training programs have been attended and tracked to meet the refresher requirements.
- Performance of TANAP is systematically monitored and measured against targets during quarterly and yearly review meetings where trends are analysed, any negative trend is justified and / or actions to mitigate negative trend are identified and when required, resource needs have been discussed and raised to Management by all Departments. Performance reporting activities are performed monthly, quarterly and annually.

2.3.3.1 Environmental Monitoring and Reporting

TANAP has developed an Operations Environmental Monitoring Plan (TNP-PLN-ENV-GEN-008) that is applicable to all Project activities during the Operations Phase. The framework of environmental monitoring and reporting requirements during Operations is summarised in Table 5 within that Plan, as shown in

Monitoring / Verification Activity	Reporting Format	Frequency
Internal Monitoring / Verification		
HSE Site Inspections	Checklists	Weekly
Internal Audits/Inspections	Audit Reports	As required
CEMS	Verification Report	Annually
GHG Monitoring	Monitoring Report	Annually
External Monitoring / Verification		
IESC Missions	Monitoring Report	Annually
Biodiversity Offsetting Evaluations	Monitoring Report	Annually
RoW Patrol Inspections	Progress Reports Summary Report	Daily Monthly
TPMC	Progress Report Summary Report	Monthly Annually

Figure 2.3 below. TPMC is Third Party Monitoring Company (i.e. Assystem-ENVY).

Monitoring / Verification Activity	Reporting Format	Frequency
Internal Monitoring / Verification		
HSE Site Inspections	Checklists	Weekly
Internal Audits/Inspections	Audit Reports	As required
CEMS	Verification Report	Annually
GHG Monitoring	Monitoring Report	Annually
External Monitoring / Verification		
IESC Missions	Monitoring Report	Annually
Biodiversity Offsetting Evaluations	Monitoring Report	Annually
RoW Patrol Inspections	Progress Reports Summary Report	Daily Monthly
TPMC	Progress Report Summary Report	Monthly Annually

Figure 2.3 Operations Phase Environmental Monitoring and Reporting Requirements

Following the previous remote audit, the IESC recommended that the Physical Monitoring section of the Operations Environmental Monitoring Plan (TNP-PLN-ENV-GEN-008) be updated to incorporate the on-going geo-hazard monitoring being undertaken by the external contractor Temelsu. Additionally, the IESC recommended that this Plan was revised to incorporate a clear definition of what a 'non-conformance' does and does not relate to, as it was not clear whether or not this included identified defects**.** TANAP has informed the IESC that operations phase monitoring plans are currently under review and will be updated accordingly. As such it cannot yet be verified that these recommendations are closed and the findings remain open.

2.3.3.2 RoW Patrolling Inspections

To help ensure the integrity of the pipeline, regular visual inspections of the pipeline corridor are undertaken by RoW Patrolling Teams (PT) (sub-contracted by Botaş). These teams make observations including in relating to third party infringements, surface conditions and soil erosion and report on the condition of the RoW to the TANAP Integrity Management Department. As such, any risks to the integrity of the pipeline are identified and appropriate action can then be taken in a timeframe commensurate with the level of risk.

During this audit, the IESC was informed that based on the experience of undertaking RoW patrols since operations commenced, and in relation to a newly signed Service Agreement with Botaş, the frequency of patrols has been increased from 30 day to 15 day intervals. Additionally, the number of PTs has increased from 7 to 10, each covering a 170-200 km section of the pipeline. This is considered by the IESC to be a positive and beneficial change based on lessons learned; to ensure that the entire pipeline route can be effectively patrolled and that any issues are identified within a shorter timeframe. These changes have been captured in an updated Standard Operation Procedure for RoW Patrolling (TNP-PCD-OPR-GEN-153).

Each PT is based at and managed from one of 4 'Responsible Sites' or Area Maintenance Centers (AMC), namely MS1/CS2, CS3/AMC, CS5/MS2 and MS3/MS4. From there PTs make daily trips, covering their designated area within the required 15 day period. Each team comprises a Team Leader (also driver) and 4 Technicians. The teams work in 2 pairs, with separate pairs being dropped at the start and end points of the planned daily section being patrolled, after which they walk towards the mid-point where they are met by the Team Leader. During summer 2021, a total of 6 complete tours of the TANAP route were completed by the RoW PTs. The PTs are equipped with GPS supported tablets and upload their observations and associated photographic records to the TANAP Integrity Mapping Platform (IMP) with GPS co-ordinates embedded. Figure 2.4 shows the most common findings following the 2021 patrols.

Type Of Finding	Count of Findings
Line Marker / Ariel Marker is on the site but not listed	74
Planting of trees on Row	33
LineMarker/ArielMarker is removed	26
CP-Post is damaged	21
LineMarker/ArielMarker is damaged	13

Figure 2.4: Top 5 PT Findings in 2021

Of the total findings, 49 were high priority, 278 medium priority and 119 low priority, with the vast majority (283) being observed during the first of the 6 tours. As at the time of the remote audit, 398 findings had been closed out and the remaining 48 were in progress.

In addition to the regular planned patrols, the PTs are also required to mobilize as necessary to perform unplanned inspections of the condition of the RoW. This may be following e.g. an earthquake, heavy rainfall event or flood, whereby an initial survey of any damage to the RoW is required. In these instances, patrols are coordinated by the MCC Security Team who will mobilize the nearest available PT.

2.3.3.3 Geo-hazard Monitoring

Geo-hazard monitoring is undertaken on an annual basis by the Contractor Temelsu, under the leadership of subject matter experts, relevant academics and experienced engineers. In 2021 the entire pipeline route was surveyed, focusing on 4 key geo-hazard risks;

- Soil erosion on 690 steep slopes (>5^{o}),
- 90 karstic regions,
- 229 river crossings and
- 304 locations where there are landslide risks.

Going forward, the required frequency of monitoring by Temelsu is annually for Medium risk, every 3 years for Low risk and every 5 years for Notable sites. High risk sites require action to be taken. The IESC requested the annual monitoring reports in relation to each of these geo-hazards as part of the pre-read material for the audit. TANAP provided excerpts from each of the 4 surveys conducted in 2020.

The specific risk levels for soil erosion on steep slopes are determined as shown in Figure 2.5.

Risk Class	Erosion Risk	Erosion Rate (tones/ha)	Visual Assessment
Negligible	1	<2	No wash marks or scours
	2	2-5	Shallow rills every 50-100 m
Low	3	5-10	Discontinuous rills every 20-50 m
Medium	4	10-50	Continuous network of rills every 5-10 m or gullies every 50-100 m
	5	50-100	Continuous network of rills every 2-5 m or gullies every 20 m
High	6	100-500	Continuous network of channels with gullies every 20 m
	7	>500	Extensive network of large gullies every 20 m

Figure 2.5: Steep Slope Soil Erosion Risk Level Ratings

Two of the Soil Erosion site examples provided were classified as Medium risk level. The IESC subsequently requested evidence of the actions that had been taken in response to the recommendations made by Temelsu for these two sites, which was presented during the audit as follows:

At **KP 1529+861.97**, it was observed that the slope breakers had been constructed with the wrong orientation and had therefore been damaged by surface run-off. Additionally, rills and gullies had developed, there was significant sheet erosion and there was subsidence along the RoW due to poorly compacted backfill. The Contractor was still under warranty at this site and as such this was raised as a

defect. Repairs were undertaken and the risk level has subsequently been reduced to 'Low' (as reported in the Draft 2021 Temelsu Soil Erosion Survey Report).

At KP 0702+441.88, significant sheet erosion and soil creep was observed, the channels behind the slope breakers and head ponds were filled with sediment and there were up to 1m deep gullies and rilling as shown in Figure 2.6. This was considered to be due to high levels of surface water flow, high erosion risk potential of the soil and dissolution of gypsum. It was recommended that the slope was reinstated**.**

Figure 2.6: KP 0702+441, 88 – Survey Findings

As a result, remedial works were carried out, including the creation of a flood protection bund, repairs to slope breakers and the application of hydro-mulch as shown in Figure 2.7.

Figure 2.7: KP 0702+441, 88 – Remedial Works Conducted

Temelsu also made recommendations for actions to be taken at other slopes given a 'Low' risk rating in the examples provided for review. However, the IESC was informed that due to the lower level of risk, the only action to be taken is to maintain monitoring.

The IESC also requested evidence of the actions that had been taken to address the issues identified at two river crossing sites classified as 'Medium' risk level in the examples provided. The first was **RVX4-5101** where the incorrect construction of rip rap had resulted in erosion of the right bank above the rip rap and scouring of the river bed. This was raised as a defect with the relevant Contractor and remedial works were undertaken. However, during the subsequent survey undertaken in 2021, the intervention was shown to have been inadequate and the risk level remained as Medium. As such, additional, permanent works are planned for 2022. As the warranty period for the Contractor has now expired, TANAP's Operations and Maintenance Department will be responsible for undertaking the repairs.

The second 'Medium' risk level river crossing was RVX4-0008, as illustrated in Figure 2.8. Undercutting and erosion was observed on both banks and the rip rap that had been installed was creating a downstream drop in water level and scouring over the Botaş pipeline, which runs parallel to TANAP. This was also registered as a defect with the relevant Contractor and repairs undertaken have now reduced the risk level to Low, as confirmed during the 2021 survey and as shown in Figure 2.9

Figure 2.8: Medium risk level erosion at RVX4-0008

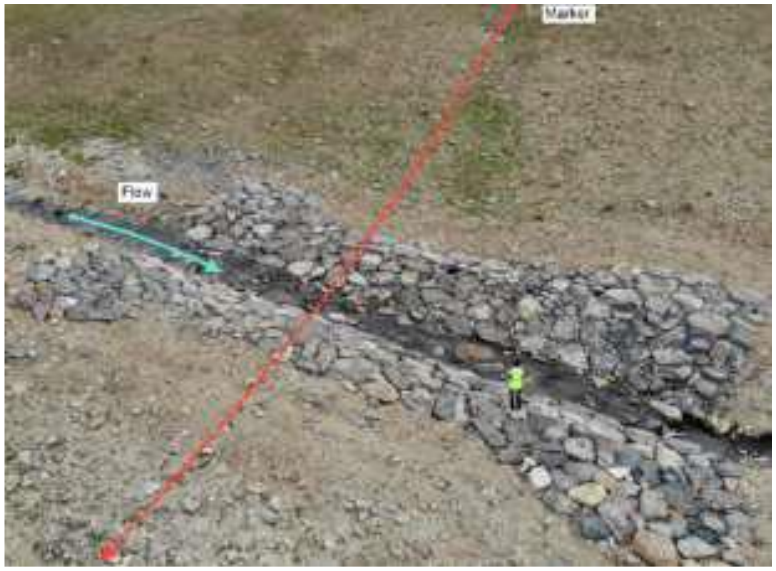

Figure 2.9: Repair works undertaken to RVX4-0008

It is acknowledged that the PTs will also make ad-hoc observations of geo-hazard risks at river crossings, and the TANAP Geo-Hazard Coordinator will conduct their own regular site visits, so TANAP will not only be reliant upon the results of the Temelsu surveys to detect erosion issues. .

All of the examples provided to the IESC for review following the 2020 Karst Survey were of Low risk level. However, during the audit TANAP explained that as a result of the survey, appropriate actions were taken in all high and medium risk level areas and consequently the risk levels were reduced to Low. One of the measures recommended by Temelsu for the low risk Karst areas is for monitoring to be undertaken following heavy rainfall. This would fall under the unplanned inspections to be carried out by the RoW PTs.

Following the landslide survey in 2020, there were three Medium risk level sites in the examples provided to the IESC for review. The Risk Level rating for landslides is determined as shown in Figure 2.10.

Subject	None	Negligible	Low	Medium	High
Landslide Length	Less than 5m 0	5 m < LL < 25 m 1	25 m < LL < 100 m 2	100 m < LL < 250 m 3	More than 250 m 5
Distance	ROW not in effective area 0	ROW within effective area 2	Pipeline within effective area 4	ROW within landslide 6	Pipeline within landslide 8
Activity	No sign of movement 0	Inactive (Ancient Landslide) 5	Suspended 13	Active or reactivated with mod. or low movement rate 20	Active or reactivated with rapid movement rate 30
Movement Type	Stable 0	Flow - Surface Flow (very shallow seated) 3	Flow & Lateral Spread 5	Slide or Complex (shallow seated) 8	Slide or Complex (deep seated) or Fall & Topple 12

Notes	Rating	Risk Assesment by SME
- If the ROW is not in the effective area, risk level automatically equals to negligible. - ROW: Right of Way (around 36m - 18m left & 18m right of pipeline) - Effective area equals to 20 % of the landslide length on movement direction.	Rating ≥45 : High Risk 45> Rating ≥35 : Medium Risk 35> Rating ≥25 : Low Risk 25> Rating : Negligible	35 - Medium Risk	Medium Risk

Figure 2.10: Landslide Risk Level Ratings

In these cases, it was recommended that the landslide areas should be monitored visually on an on-going basis, and instrumentation should be used where appropriate. TANAP employs inclinometers and

monuments in specific landslide areas to detect local ground movement and settlement but to date no movement has been detected that would affect the integrity of the pipeline. Whilst TANAP does pass through areas with recognised landslide risks, the design measures taken, including the specific routing of the pipeline, have so far been effective at minimizing this geo-hazard risk.

Whilst only a limited sample of geo-hazard survey results were provided to the IESC for review, it is clear that geo-hazards will be an on-going challenge for the Project and that there is a need for on-going, regular risk based monitoring throughout the Operations phase.

During the previous remote audit, the IESC observed that the Standard Operating Procedure for RoW Patrolling included that the PTs should undertake detailed river crossing assessments twice a year (minimum), to identify and report any changes in the course of the river before they happen. This was misleading as TANAP informed the IESC that detailed river crossing assessments were in fact within the scope of work of the Geo-Hazard Monitoring team (to be undertaken annually). Upon the recommendation of the IESC, the Standard Operating Procedure for RoW Patrolling has now been revised to remove the requirement for PTs to undertaken detailed river crossing assessments. This now states that '*Detail geo-hazard crossing survey and engineering assessments of river crossings are not in the scope of the PTs. RVX assessments shall be conducted as part of Geo-hazard Monitoring scope'*.

2.3.3.4 Contractor Monitoring

Now that the Project is into the second year of operations, the Construction Teams are focused on ensuring that any remaining warranty defects are closed before the end of the Warranty Period. The contractual warranty period completion dates are as follows:

- Lot-3: 12.12.2020
    - Extended Warranty Period: 12 December 2021.
- Lot-2: 12.12.2020
    - Extended Warranty Period: 12 December 2021.
- Lot-1: 25.12.2020
    - Extended Warranty Period: 25 December 2021
- Offshore: 31.12.2020
- SCADA Phase 0: 30.06.2021

- Stations: 31.10.2021
- Lot-4: 28.12.2021
- SCADA Phase 1: 31.12.2021

As of 15 November 2021, there were 54 outstanding open defects, although the IESC was informed that at the time of the monitoring these have mostly been closed. All of these 'open' defects have been accepted by the relevant Contractors, and as such they are obliged to complete the required repairs, even if the repair process extends beyond the warranty expiry date.

Owing to the end of the Warranty Periods, Contractors will no longer be required to produce quarterly Aftercare and Monitoring Reports. Please also see Section 2.4.2.1 of this Report.

2.3.3.5 Third Party Monitoring Company (TPMC)

There are a number of third party monitoring companies active in delivering operational requirements. These are:

Environment

- Environmental Third Party Monitoring and Consultancy Services (Assytem ENVY Çevre ve Enerji Yatırımları A.Ş.)
- Greenhouse Gas Emission Verification Services (AURA Uluslararası Belgelendirme)
- Long Term Services Contract for Water & Waste Water Treatment Plants Maintenance, Spare Parts and Support Program (GNS Arıtma Teknolojileri Mühendislik Hizmetleri Proje Taahhüt Ticaret)

Social

- Monitoring of the social impacts at Operation phase as per the ESIA and the commitment register is being conducted by Assystem-ENVY. The first physical Operations monitoring campaign was completed in early October 2021. This comprised a visit to 28 settlements and interviews with muhtars on the grievance mechanism, stakeholder engagement activities and community health and safety measures. At the time of the audit, the Monitoring Report was under TANAP review.

Health and Safety

- HED Academy provides Road Safety Consultancy services to TANAP. ÇET-KA OSGB provides medical and occupational safety staff and ambulance services to TANAP.

2.3.3.6 Integrity Mapping Platform

All Departments within TANAP (as well as a number of contractors) are required to utilise the web-based geographical information system named Integrity Mapping Platform (IMP) to enable the sharing of spatial information relating to the pipeline and stations throughout the Company thereby ensuring continuity and consistency of understanding for the Project, and providing an easy reference point for all staff. The IMP is a central repository for aerial images, permits, as built data, monitoring results and information from the QHSE, engineering, operations & maintenance and security Departments.

An aerial survey and photogrammetric Inspection of the entire pipeline was planned for 2021 to give an additional level of assurance for GIS supported RoW monitoring activities. This will be conducted by plane and data from this will be integrated with the IMP to ensure that TANAP has an up to date overview of the condition of the RoW. This is slightly delayed but the bidding process has been continuing and it is planned for 2022. In the meantime, TANAP is employing photogrammetric mapping drones to take aerial images and create high resolution 3D terrain model of specific areas of the RoW where, for example, there is a need to investigate a complaint relating to reinstatement, the owner of a land parcel is making an additional claim for compensation, or a visual inspection and capturing some aerial photos would be useful. All drone operators are registered and licensed and permits are always obtained from the relevant public authority prior to flying. Drones can only be operated in areas where it is not prohibited to do so and as such, their use is determined on a case by case basis.

2.3.4 Assessment and Management of Change

There is an outstanding MoC relating to the construction of central waste accumulation areas, chemical storage areas and pressurized cylinder storage areas at MS1, CS1, CS4, MS3 and MS4. Only temporary areas were originally designated for these purposes at the stations, and these were not considered by TANAP to be adequate. Therefore detailed design and construction of fully compliant waste accumulation and storage, and hazardous materials storage areas was required. A new service order contract has now been issued to the Contractor and construction work is planned to commence in April 2022.

2.4 Resource Efficiency and Pollution Prevention

2.4.1 Resource Efficiency

This topic was not specifically addressed as part of the remote audit.

2.4.2 Pollution Prevention & Control

The Environmental Monitoring Plan (EMP) (Appendix 2) outlines the requirements for Key Performance Indicators for the Operational Phase of the Project and requires that performance is tracked quarterly or monthly, using data from the various monitoring processes outlined within the Plan.

TANAP provided a table of performance against 8 KPIs for Q1, Q2 and Q3 2021. However, the indicators presented do not fully align with those listed in the EMP. For example, under the heading of Waste Management in the EMP, the indicators of performance are the % of waste segregated (with a target of 100%), the number of complaints relating to waste management (with a target of 0) and the % of non-compliances raised by TANAP in relation to waste that are closed within the agreed timeframe (target 100%). However, the only waste related KPIs in the Excel table provided were the total quantity of non-hazardous and hazardous wastes generated, neither of which are given a target, being for information only.

Furthermore, there was a breach of wastewater quality threshold values at the MCC in October 2021 (as detected by the ENVY sampling). However, under ENV.KPI.0002 for 'Non-compliant Emissions (Air & Wastewater)', no non-compliances are recorded in Q3.

It is recommended that TANAP re-considers how information on environmental KPIs is collated and reported to ensure that the requirements of the Operational EMP are being fully met, and that the data reported accurately reflects the findings of all current environmental monitoring results.

There was a minor Environmental Incident between 27 July and 8 August 2021 at the MCC Wastewater Treatment Plant. Samples of wastewater effluent that are taken every 4 months by the laboratory assigned to the MoEU Central Laboratory Identification System to check compliance with the Environmental permit for the MCC (for a wastewater treatment plant with a capacity of < 50M^3/day), did not meet legal discharge limits in accordance with the Water Pollution Control Regulation. Three parameters exceeded threshold values (based on a total of 3 samples taken over a 10 day period). As such, an administrative fine was imposed by the Provincial Environment Directorate of the MoEU.

The incident report has been provided to the IESC for review and indicated that the likely cause of the problem was a ruptured decanter hose in the treatment tank, which allowed some sludge to be mixed with the effluent at the time the samples were taken. Immediate actions that have been taken in response to the incident include increasing the frequency of checking the surface of the treatment tank to at least twice daily. As such, the IESC is confident that further incidents of this nature are unlikely to occur in future.

In relation to the remainder of the KPIs as presented to the IESC, where annual targets for activities have not yet been met, for example in relation to the number emergency drills held and E/S compliance reviews undertaken, exercises are planned during Q4 to ensure that the required number is achieved.

Although Assystem-ENVY do not monitor air quality emissions as part of their scope, the MoEU have allocated a laboratory to undertake emissions measurements to determine they are meeting the threshold values specified in the Industrial Air Pollution Regulation. As such emissions measurements

were taken from the heating boilers at all compressor stations and metering stations. The results of this sampling will be provided to the related Provincial Directorate of the MoEU and were not available for IESC review.

Additionally, air emissions measurements were conducted on 26 and 27 October 2021 from the stacks of the CS5 offtake compressors and MS2 fuel gas heaters to fulfil the legal monitoring requirements stipulated by the Environmental Permit and License Regulation. TANAP did not report that there were any non-conformances.

TANAP provided copies of the Air Emissions Measurements Summary Reports produced for the MoEU for CS5-MS2 (March 2021) and MS1 (February 2021) following surveys undertaken by the Haliç Environmental Analysis Laboratory. These indicated that there were no breaches of the emissions limit values set by the Industrial Air Pollution Regulation.

TANAP additionally outlined during the audit that the Eskişehir Provincial Directorate of the MoEU conducted an integrated environmental audit on 1 September 2021 and all the findings were reported to be compliant with the relevant legal requirements. A further integrated environmental audit was conducted at CS1 by the Ardahan Provincial Directorate of the MoEU on 26 October 2021. Again there were no non-compliances recorded.

2.4.2.1 Soil Erosion

Following the last physical site visit in November 2019, the IESC raised a concern relating to the potential for soil erosion on the steep slope at KP 1661 in Lot 4. This was due to significant gapping observed in the jute matting that had been applied by the Contractor. Photographic evidence of the condition of the slope and berms was provided to the IESC as part of the remote audit undertaken in October 2020. The photos were considered to show possible signs of rilling of the slope face and some of the berms, especially towards the foot of the slope, however, the photos were either taken at a distance or of were of specific close up sections of the slope and therefore did not allow for the IESC to gain a complete or reliable understanding of the condition of the slope and the extent of any erosion. As part of the 2021 remote monitoring, recent photos were requested to show the current condition of the slope at this KP. The photos provided by TANAP and included the ‘Aftercare and Monitoring Report in Lot4: June-July-August 2021’ (PLK-REP-ENV-PL4-026) appear to show that there is no significant soil erosion on this slope, which seems stable with good rates of revegetation as illustrated in Figure 2.11. The IESC will, however, seek to observe this slope during the next physical site visit to verify that there are no residual soil erosion issues.

Figure 2.11: Current condition of the slope at KP 1661

During the previous remote monitoring, a review of the PLK JV Aftercare and Monitoring Report (Lot 4) raised concerns that some of the photographs included showed defects, which were not highlighted as 'damage' by the Contractor.

One example was at KP 1504+910, where the stones comprising one of the slope breakers appeared to be migrating down the slope. This was not logged in the Defects Register, and so had not been identified as a defect by TANAP following the regular RoW Patrols. The IESC requested evidence of the current condition of this slope as part of this remote audit. As can be seen in Figure 2.12 below (the image from 2021 is below that from 2020), there still appears to be the same issue. Without undertaking a physical site visit, it is not possible to verify whether this reducing the effectiveness of the slope breaker and may increase the rate of soil erosion, and should have been raised as a defect. However, the lack of any obvious, significant soil erosion below the slope breaker would indicate that no remedial action would be necessary at this site. The IESC will also seek to observe this slope during the next physical site visit to confirm this.

Figure 2.12: Migration of rocks from the slope breaker at KP 1504+910 (2020 / 2021)

At KP 1435+340, it appeared that surface run off was being directed onto the RoW from the lateral slope and a number of erosion gullies were forming as a result, albeit these were on the edge of the RoW and therefore may not pose a significant risk to the integrity of the pipeline. The latest Lot 4 Aftercare and Monitoring Report (for June, July, and August 2021) states that 'no damage' has been detected at this slope and that 80-90% vegetation cover has been achieved. The photograph provided in that report does not show the equivalent lower section of the slope (as illustrated in Figure 2.13 below). Photos of this slope provided by TANAP show that the gullies are still prominent, but it is not possible to verify whether or not they have deepened or extended from the images provided. The IESC would seek to observe this slope during a physical site visit to ascertain the extent of erosion and whether or not this presents a geo-hazard risk that would require intervention.

Figure 2.13: 2020 Condition of slope at KP 1435+340 (top left) compared to 2021.

The Contractor Aftercare and Monitoring Reports provided for Lots 1, 2 and 3 were all from 2020 and reported no soil erosion or river crossing erosion problems. From a cursory review of the photographic evidence provided in the reports (many of which are taken at a distance, are poor quality or do not show sufficient context), it is difficult to confidently conclude that these Reports are giving an accurate overview of the condition of the RoW. Furthermore, this does not align with the Defects Register entries for 2020, which included a number of defects relating to river crossings and erosion on slopes across all 3 Lots.

The Report for Lot 4 presented the findings of a survey undertaken between June and August 2021 and indicated that whilst the vast majority of slope breakers are undamaged, the small number that were, had been damaged by the Forestry Authorities during reforestation activities. Where hydroseeding / hydro-mulch application has not achieved the expected level of success, this is blamed on the soil type, afforestation activities, geographical location or starting the application before it was needed and insufficient irrigation. The Report for Lot 4 includes at least one photograph indicating a clear risk to the pipeline from soil erosion at KP 1518+302, as shown in Figure 2.14.

This issue has been added to the Defect list, as a medium priority defect. It was raised on 6 August 2021 and had a due date of 30 September, however at the time of the monitoring was still listed as being an open defect. Following the monitoring, TANAP have confirmed that the defect was closed and have provided the Warranty Defect Form signed on 27 December 2021. The IESC will request a visit to this slope as part of the next site visit to confirm that repair works have been effectively completed.

Figure 2.14: Soil erosion at KP 1518+302 (Lot 4).

The latest version of the defects register provided to the IESC at the time of the monitoring indicated that there were only four remaining open defects. These included the one outlined above at KP 1518+302. The other 3 were all Low risk defects in Lot 4, however, these were not highlighted within the latest available Monitoring and Aftercare Report for Lot 4 that provided to the IESC for review during the monitoring. Following the monitoring, TANAP has provided the IESC with an updated version of the Defects Register (on 26.01.22) that indicates all outstanding defects were closed by the end of 2021.

Any misalignments between the Contractor Aftercare and Monitoring Reports and TANAP's Defects Register will not be an issue going forward, given that the Contractor Warranty Periods will all have expired by the end of 2021 and this additional level of monitoring will stop. The fact that TANAP are detecting geo-hazard defects through the RoW Patrols and/or the Temelsu surveys over and above what is being reported by the Contractors, gives the IESC comfort that soil erosion defects are being effectively detected. However, continuous geo-hazard monitoring by TANAP and the TPMC will be even more important with regard to identifying any future soil erosion risks and enabling action to be taken, if required, in a timeframe commensurate with the level of that risk when Contractor monitoring is no longer a requirement.

2.4.3 Greenhouse Gases

Çınar has been appointed by TANAP to calculate annual GHG emissions during the Operations phase of the Project. A methodology was developed by Çinar for this (ref. CIN-REP-ENV-GEN-027) based on the 'International Financial Institution Framework for a Harmonised Approach to Greenhouse Gas Accounting (November 2015)'.

The most recent GHG Emissions Report for 2020 was issued on 26 February 2021. Scope 1 (Direct) and 2 (Indirect) emissions have been calculated using the accounting methodologies outlined in the document referenced above. Scope 3 emissions (arising from sources not operated by the Project) are not typically included in annual reporting exercises and are excluded.

According to this Report, the total annual GHG emissions resulting from the operation of TANAP in 2020 were 138,759.582 tCO_2e. This represents a 24% decrease compared to GHG emissions in 2019. It was noted that emissions from stationary sources and electricity consumption doubled in 2020 (compared to 2019), due to the commencement of commissioning activities. In addition, fugitive emissions increased by 11% and emissions from mobile combustion sources almost tripled. The overall decrease in emissions, however, was due to a 65% reduction in vented gas (which is one of the main sources of GHG emissions on the Project). In 2019 TANAP performed a range of venting operations due to relief tests, valve tests, inspection vents and equipment changes, which may account for the comparatively higher figure in that year.

2.4.3.1 BVS5 Gas Leak

On 15 May 2021 a mechanical failure lead to a gas leak from BVS5 was identified. TANAP Incident Management Process was initiated and Emergency Response Team was mobilized to the site immediately. After taking all appropriate safety measures the exact location of gas leak was identified and intervention initiated. By 21 May 2021 pipeline integrity had been assured and operations resumed.

During this time, an equivalent of 54.7kT of CO_2 was released into the atmosphere. This is roughly equal to the total fugitive emissions of TANAP operations in 2020 which was calculated as 60.4 kT equivalent CO_2. In 2020 the total GHG emissions were calculated at 138.8 kT CO_2 equivalent.

The 2021 total GHG emissions are not calculated yet but it is anticipated that they will be less than 200 kT CO_2 equivalent. This figure is much less than the full capacity annual estimate mentioned in the EIB document (i.e. 748 kT CO_2eq/yr). In this case the incident is not considered significant in terms of additional GHG emissions. Once GHG emission reporting is completed for the 2021 period the IESC will report on the actual outcome of the gas leak in the following reporting period.

2.4.4 Wastes

Without undertaking a physical site visit, the IESC is unable to verify whether or not the waste collection, handling and storage requirements outlined within the Operations Phase Waste Management Plan are being met. This topic was therefore not specifically addressed as part of the remote audit.

2.4.5 Hazardous Substances and Materials

Without undertaking a physical site visit, the IESC is unable to verify whether or not the hazardous materials storage and transport requirements outlined within the Pollution Prevention Plan for Operations are being met. This topic was therefore not specifically addressed as part of the remote audit.

2.5 Labour and Working Conditions

2.5.1 Human Resource Policies and Working Relationships

TANAP has a Human Resources Policy [TNP-POL-HRM-GEN-006] and HR Management Plan [TNP-PLN-HRM-GEN-001] in place as part of the operational organisational management, for which implementation is the responsibility of the Human Resources Directorate. Subordinate documents guide policy implementation and include aspects such as the Discipline Procedure; the Operational Training and Competence Philosophy; the Performance Evaluation Procedure; Recruitment and Mobilization Plan; and the Termination Procedure.

There has been a slight decline in the workforce size since the previous audit. As at 31 October 2021, there are 342 TANAP employees and 525 contractor workers. The following table describes the breakdown of the current workforce.

Table 4: TANAP direct and contractor workforce (Oct-21)

Employer	Male	Female	Total
TANAP direct employees	288	54	342
Projects contractor workers			
• Lot-1 Pipeline Phase 0 (FERNAS)	45	3	48
• Lot-4 Pipeline Phase 1 (PLK)	11	1	12
• Stations (TEKFEN)	12	2	14
Modifications contractor workers			

• Access Roads (GESA) • Repair and Modification Services (ACD)	8 28	1 3	9 31
Administrative contractor workers Inc. housekeeping, kitchen services and drivers	140	49	189
Security contractor workers	201	21	222
Total contractor workers	445	80	525
TOTAL	**733 (85%)**	**134 (15%)**	**867**

The Procurement and Supply Management Plan documents TANAP's commitment to aiming to procure goods, services and materials from local businesses to the extent possible, in order to increase local benefits, applicable to both construction and operations phases. An extract from the TANAP Lessons Learned Handbook notes that, from analysis of final contract prices, that "the payments made to companies operating in Turkey during the TANAP project investment period contributed approximately 50% of added value to the domestic market." Sub-contractor contributions were not included in this figure. Additionally, TANAP notes the indirect local procurement contribution through livelihoods support. In Ardahan, this was quantified as a 25% increase on sales of local feed as a result of 72 livelihood assistance packages. The IESC anticipates that, as the commitment applies also in the operations phase where contractors continue to support operations (see Section 2.3.4.5), TANAP will continue to monitor and continuously improve local benefits.

2.5.2 Protecting the workforce

The Human Resources Management Plan provides TANAP's wages, benefits and working conditions policy of offering competitive salaries within the market and benefits to employees, as well as operating in compliance with legal requirements.

During the ongoing pandemic, engagement with workers has continued on preventative measures for protecting workers against COVID-19 and ensuring their health and safety (see Section 2.5.3). Additionally, Social Inductions/Refresher trainings have continued to be organised for workers by the Site Social Impact Specialists, on content including TANAP's Social Commitments; Turkish laws on working conditions; worker rights and entitlements; and, the grievance mechanism. All construction contractors have been demobilised from site.

An extract of TANAP's Lessons Learned handbook reported on the Labour Audit process conducted by third party monitoring company, Practical Solutions, during the construction phase, reports that have been reviewed by the IESC throughout the monitoring phase. The handbook includes the labour audits as a positive lesson, to which the IESC concurs. The audits used document review and worker interviews (by random selection on work sites) to verify compliance with local and international labour laws and regulations, including on issues of concern to workers, including working hours, rest breaks, weekend leave and overtime.

2.5.3 OHS

2.5.3.1 General

The IESC took a focused, risk-based approach to the remote assessment of OHS and OHS was not a core focus of this remote assessment.

TANAP OHS statistics remain industry best practice with only one MTI recorded for the period under review.

The internal audit process was reviewed and frequency of assessments, findings, actions and action register are all very well implemented and managed.

The road safety management initiatives are highly commended as is the level of validation.

2.5.3.2 COVID-19 Management

TANAP utilize a COVID-19 risk assessment register which highlights the scenarios and related risks, consequences, controls, residual risk, risk treatment plan and accountable people for each risk. This is very well thought out document and a good approach to COVID management in ever-changing circumstances.

TANAP have COVID-19 specific Emergency Plans and have conducted COVID-19 related emergency scenarios. All plans and site specific risk registers are available in Turkish and available to employees.

The COVID-19 Awareness Guidance was updated and shared with contractors & visitors with Pandemic Emergency Management Plans under revision depending on government advice and changes in the global situation. Records regarding vaccination and infection are being kept updated via a register.

Currently employees are encouraged to report diagnosed and/or suspected COVID-19 cases to HQ management (workplace doctor, H&S and HR) as soon as possible. HQ management then determines the precautions including contacting of close contacts and isolation. This approach is currently practiced in most places globally and is commended.

2.5.3.3 OHS Competence and Capacity

The transition from construction to commissioning to operations requires a change in the capacity and competence of OHS personnel. This has been managed and details are note in Section 2.3.3 Organisational Capacity and Commitment.

2.5.3.4 Operational Readiness, Operational risk management (& Handover from EPC to Operations)

The OHS risk based sample of systems had a focus on the move to operations, and included (but is not limited to):

- Commissioning handover documents
- Operations risk assessment
- SOPs for BVS and CS
- Operations Training Plan
- PTW procedure and details of any breaches
- Plant maintenance schedule for fixed fire system and gas detectors

2.5.3.5 Incident reporting and management

The incident register was reviewed as were both the medical treatment injuries. Both investigations were well completed with good learning outcomes and neither of the incidents were high risk. There were no High risk near misses or LTIs for the period under review and as noted in this report the lagging safety statistics for this project are excellent and industry best practice. There was only one MTI recorded for the period under review.

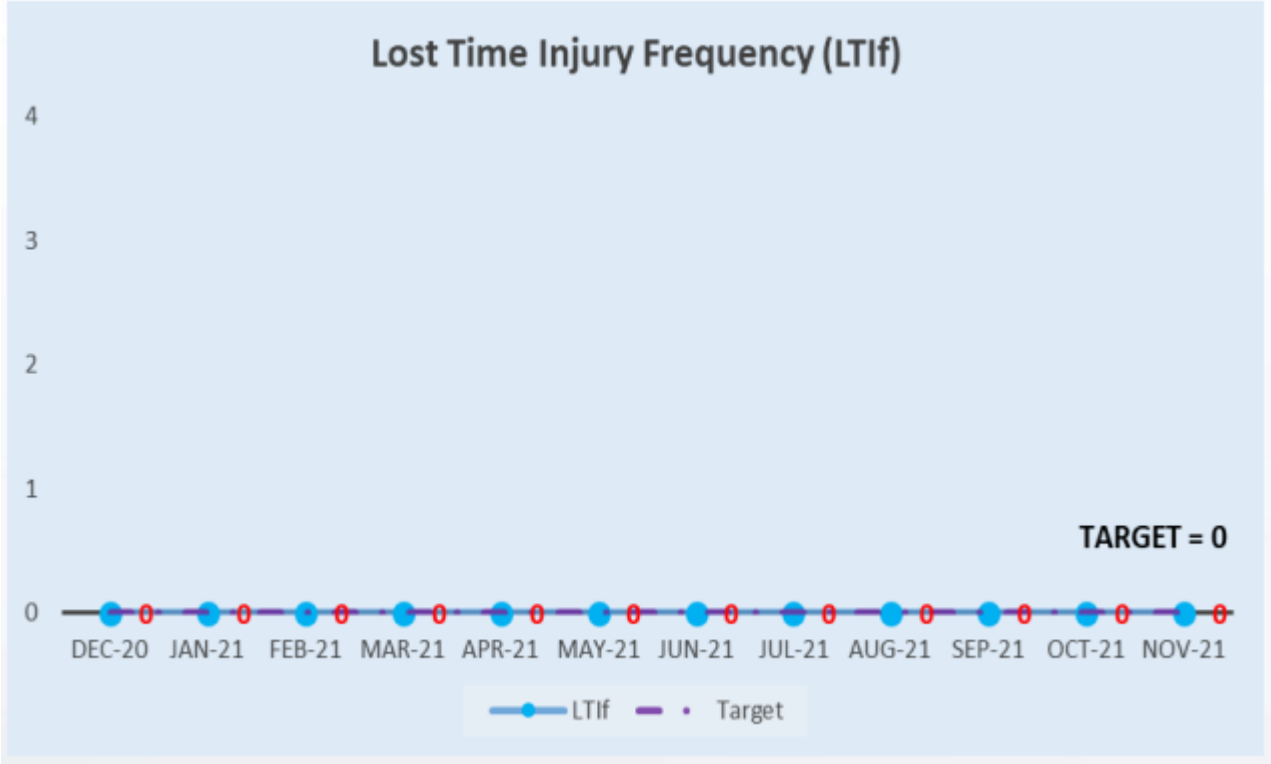

Figure 2.15 Lost Time Injury Frequency

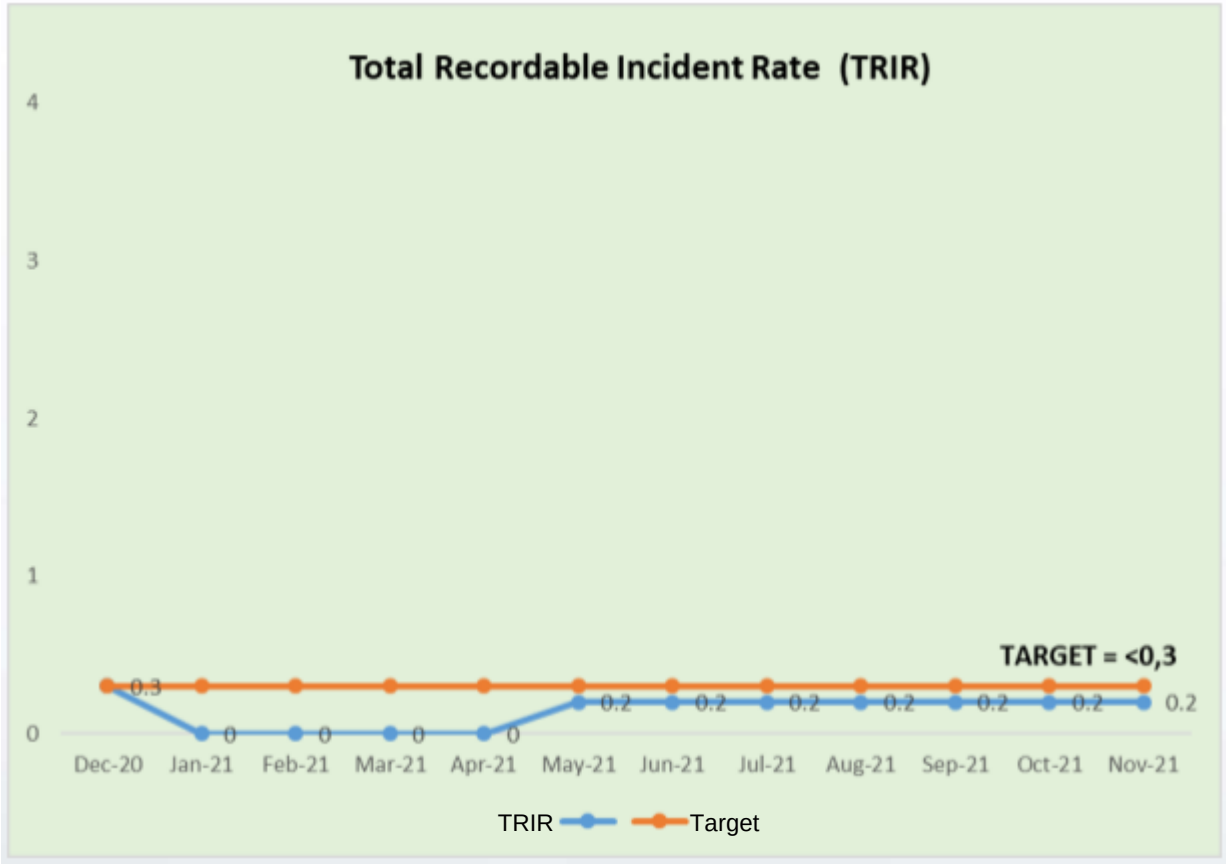

Figure 2.16 Total Recordable Incident Rate

2.5.3.6 BVS05 Gas leakage incident

A special, additional remote monitoring session was held to review the management of the gas leakage at BVS-05. Further details of this incident are still being investigated however the initial root causes were presented and seem well investigated. Remedial actions are related to managing the root causes and are currently in progress. This incident and the complete investigation and implementation of remedial actions will be a focus of the 2022 (ideally site based) assessment.

This incident will also impact the GHG emissions of the 2021 period once completed and this will be reported on in the following report (2022).

2.5.3.7 Crises and Emergency Management

There was an improvement in the scheduling and conducting of emergency exercises which is commended. Seven (7) emergency response exercise reports were sampled and these represented a good variety of scenarios and locations (CS1 COVID-19; CS5 Traffic Incident; MS3 Fire alarm activation; CS5 Fire scenario; MCC Fire response scenario; MS4 COVID-19).

2.5.4 Retrenchment

The final labour audit was conducted by Practical Solutions in December 2020 (reported 2021) with the final contractor demobilisation. No open labour issues remain (including any worker grievances, issues with trade unions or demobilisation processes).

2.5.5 Grievance mechanism

The Grievance Management Procedure [TNP-PCD-SOC-GEN-001-Rev-P6-0_GRM] has been updated since the previous audit, and sets out the process and responsibilities for handling and monitoring grievances from stakeholders (internal and external). Since the previous audit, three worker grievances were received, all of which related to employee wage/overtime payments and all of which have been closed.

2.5.6 Security Personnel Requirements

This aspect was not covered during the remote visit.

2.6 Community Health Safety and Security

2.6.1 Infrastructure, Building, and Equipment Design and Safety

This aspect was not assessed as part of the virtual visit.

2.6.2 Hazardous Materials Safety

This was extensively assessed during the last site visit and was not sampled on this remote assessment.

2.6.3 Traffic Safety

This aspect was not assessed as part of the virtual visit.

2.6.4 Exposure to Disease

This aspect was not assessed as part of the virtual visit.

2.6.5 Natural Hazards

This aspect was not assessed as part of the virtual visit.

2.6.6 Emergency Management

The Emergency Response Procedure covers all TANAP Facilities and RoW activities for the Operations phase and for any future expansion. It defines the roles, responsibilities and actions to be taken by site-based Emergency Response Teams who, in the event of an incident, emergency or impending situation, must manage the situation and bring it under control under guidance, direction and close-liaison with the Ankara-based Incident Management Team. Emergency Response and Search & Rescue services are obtained from BOTAŞ within the scope of the contract in force. Secondary support is available from the Emergency Pipeline Repair Contractor. The Incident Management Plan is applicable to all TANAP facilities including projects and modifications to the pipeline and stations. The Community-based Emergency Management Plan had been prepared at the previous audit but had not been rolled out due to concerns about presenting this topic online or by phone during COVID-19 restrictions. Consultants from Assystem-ENVY are conducting the monitoring of community health and safety mitigation measures during operations.

The gas leak at BVS05 resulted in application of the emergency response processes including relating to response management with communities. During this monitoring, TANAP and the Muhtar of the nearest village provided consistent evidence (sample documents, interview responses) to the IESC on the incident response. Overall, the incident resulted in no impact to or complaints received from communities. Neighboring stakeholders were informed within 15-30 minutes by the regional site-based Social Impact Specialist to all Mukhtars in the area and the municipality offices, then the power supply company, other utilities firms and the gendarmerie, who were called to barricade/restrict access to the area. Information disclosure then commenced in neighboring communities. Communications to nearby residents/shepherds were broadcast via the mosque loudspeaker and via message to the village WhatsApp group, and the Muhtar described ongoing communication to address community concerns during the TANAP/authorities investigations, as well as a follow-up closing message once the incident investigations were concluded. The IESC notes that both the Muhtar reported good support from the TANAP team and the Social Impact team review considered their response appropriate and well delivered.

The IESC concurs that, from a communities perspective, the key lesson learned on this incident was the need to disclose the Community-based Emergency Management Plan (CBEMP). At the last monitoring, there was concern of the need to balance causing concern with preparedness. Commendably now, TANAP has determined to prioritise information disclosure of the CBEMP to AGI-affected settlements, with, at the time of the audit, 55 of 72 calls having been made to Mukhtars about the communications chain in the event of an emergency. The agenda for these calls includes: the overall ERP as well as describing the CBEMP and how it relates to neighbouring communities; general and site security measures, including community safety; actions before, during and after any emergency; and the Social Impact team role/contacts.

Disclosure of the CBEMP to pipeline-affected settlements has been postponed; TANAP proposes to use digital calls after the spring (online video calls plus increased frequency of engagement) to achieve this rollout. The IESC commends the approach of accelerating disclosure of the CBEMP, and **recommends that the TANAP team make any adjustments necessary to the rollout after all AGI-affected settlement disclosures have been delivered, prior to delivery to the pipeline-affected settlements**. This should include an internal review and a follow up with a sample of Muhtars to determine what has worked best for them in communicating emergency response messages, and if necessary, an update of key messages, FAQs and associated disclosure materials, specific to the pipeline rather than AGIs. This may include providing a sample text message for Muhtars to send to their village population, flowcharts, key contact numbers or other materials. Additionally, the IESC noted during PAPs interviews in this monitoring, that there is a **potential gap in information disclosure with non-resident/seasonally resident landowners and land users where the Muhtar signed off on land exit forms; in the case of the interview, the seasonal landowner did not receive information on restrictions. For these cases, the IESC recommends that restrictions, including information on the safety zone, is shared directly with those landowners and land users**.

Another lesson learned involves the review of the definition of AGI-affected settlements. The ESIA describes the definition of the Area of Influence according to how settlements were anticipated to be affected by predominantly construction-related activities, and ranges from 500m to 5km for different groups of AGI- and pipeline-affected settlements[3]. The IESC considers a review on this issue timely to reflect the operational stage of the project and consider the surrounding landscape, transport routes, and connectivity of those settlements to the AGIs and how this relates to emergency response. TANAP is considering inputs of Muhtars for local context to inform the review (e.g. the type of terrain near settlements, distance to main roads to the village, etc). However, consideration of issues including emissions to air must also be considered. The **IESC anticipates that any change in definition**

[3] ESIA (TNP-REP-ENV-GEN-002_CH-7.3.3), Table 7.3.3-23: Classification of AoI

proposed from a review would trigger a Management of Change process to update the project documentation.

2.7 Land Acquisition, Involuntary Resettlement and Economic Displacement

2.7.1 Consultation

Consultation on land acquisition and livelihood restoration was a key activity for completion of the RAP End-Term Impact Evaluation (RETIE) (i.e. RAP Completion Audit). Although the original field plan design could not be implemented due to COVID-19, engagement was conducted by phone and limited face to face dialogue. See Section 2.7.5 on the RETIE.

2.7.2 Compensation

Expropriation has been completed. All compensation payments have been made by the Land Rights Entity, LRE, the entity designated to manage and execute all land acquisition activities, and deposited in an escrow account per parcel in compliance with the Expropriation Law.

2.7.3 Grievance

See Section 2.9.2, which includes grievances related to RAP/LRPs.

2.7.4 Resettlement and Livelihoods Planning and Implementation

Statistics for November 2021 are provided in the table below.

Table 5: TANAP land acquisition statistics (Nov-21)

	Number of private parcels (1)	Number of public parcels (2)	Total number of parcels (1+2)	Registration cases in court - completed (3)		Registration through consent agreement (4)		Total number of registered parcels (3+4)		Registration Status (%)
				Private	Public	Private	Public	Private	Public	
Pipeline	18,343	6,472	24,815	10,354	319	7,956	6,036	18,310	6,355	99.40
AGI & Access Roads	707	239	946	594	42	95	191	689	233	97.46
ETL	2,033	949	2,982	1,576	31	428	830	2004	861	96.08
Others**	196	80	276	158	6	22	62	180	68	89.86
Total	21,279	7,740	29,019	12,682	398	8,501	7,119	21,183	7,517	98.90

* Statistics provided by November 2021; the number of parcels are adjusted due to land consolidation, cadastral renewal works as well as an additional land acquisition with respect to rip-rap installations, slope breakers, drainage channels and such facilities.
** Others category includes project facilities rip-rap installations, slope breakers, utility lines, drainage channels etc.

A total of 29,019 land parcels have been subject to land acquisition and 98.90% of the original parcels are now registered to BOTAS/LRE. The remaining gap is caused by issues outside TANAP control (e.g. due to the government's land consolidation processes, cadastral renewals) and is thus considered not likely to reach 100%.

Additional land acquisition for operational works is ongoing, with action being taken on land required for, inter alia, drainage, rip-rap installations, land consolidation, and slope-breakers. Expropriation has been completed on plots for which requests had been made by landowners; following installation of AGIs, expropriation was offered on remaining parts of the parcel, subject to eligibility criteria, as a means of avoiding court processes. Six of 27 requests were assessed as eligible; this is one more case and one more acceptance since the previous monitoring.

In line with past recommendations, TANAP conducted a survey to assess potential livelihood loss of landowners/users on temporarily rented lands. A field survey of a sample of 71 of the 310 temporarily rented parcels was carried out in October 2020, which included interviews, photo evidence and soil analysis. Results identified six parcels for further investigation by the Social Impact team, of which four were identified as having potential livelihood loss issues. These were addressed by registering complaints for the four cases, of which 3 have now been addressed and one remains open. TANAP is commended on implementation of this assessment.

An extract from the TANAP Lessons Learned Handbook describes two successful components of the land access and livelihood restoration program design and implementation, being: the design and adaptive management in implementation of the LRPs; and, provision of the RAP Fund to bridge the gaps between national legal requirements and international Lender standards in provision for livelihood restoration, including payments for multiple pipeline impacts. The IESC commends this review process, including that lessons learned in the RAP implementation have been shared in various public forums.

2.7.5 Monitoring

The RAP End Term Impact Evaluation (RETIE) was in draft form at the time of the monitoring, and has now been concluded and the final disclosed with Lenders and online[4].

The recommendations made in the RETIE have been considered by TANAP, many of which have been accepted and will be implemented. These relate to: expropriation; reinstatement; land exit; and stakeholder engagement during operations on restrictions and land entry.

Implementation has commenced on corrective actions identified as priorities by TANAP and that agreed corrective actions will be implemented out to 2023. The IESC notes that there have been changes on a final suite of actions agreed between Lenders and TANAP since the time IESC monitoring was carried out; the final TANAP response to the corrective actions is presented in the figure below.

[4] https://www.tanap.com/store/file/common/e23d13df65a22491fa49ddce8d4bda02.pdf

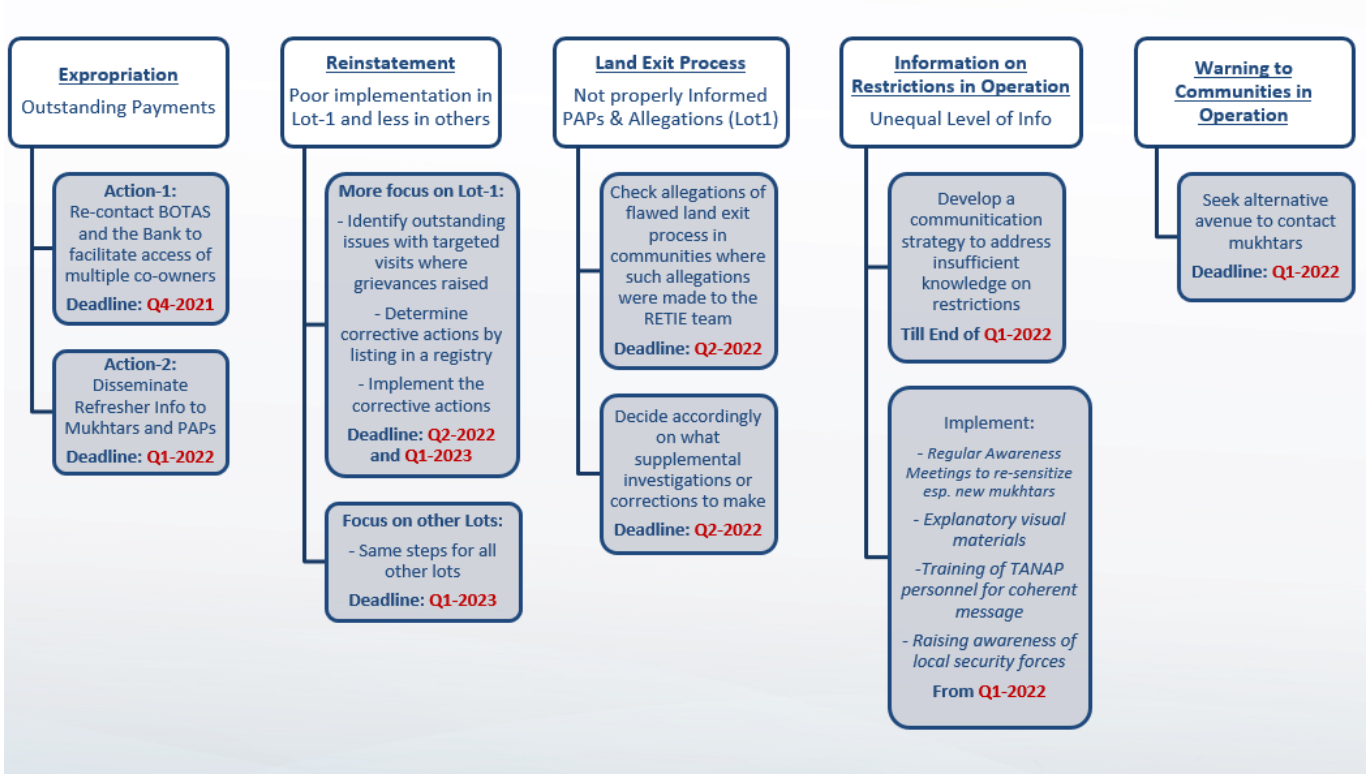

Figure 2.17: RETIE Corrective Action Plan and TANAP Final Response (Jan-2022)

One corrective action may give rise to changes to the figure above. This relates to the allegations of a flawed land exit/gaps in information disclosure to be investigated and/or filled by ongoing engagement meetings; depending on investigation outcomes, this may add new corrective actions or a change in overall timeline for corrective action implementation.

The IESC commends TANAP and the RETIE team on implementing the evaluation under challenging circumstances and delivering a thorough, considered set of findings and corrective actions. An update on implementation is anticipated at the next monitoring.

2.8 Cultural Heritage

2.8.1 Assessment

This aspect was not assessed as part of the virtual visit.

2.8.2 Consultation

This aspect was not assessed as part of the virtual visit.

2.9 Disclosure and Stakeholder Engagement

2.9.1 Stakeholder Engagement

Limitations on engagement as a result of COVID-19 broadly remain as per the previous audit, with an increased use of online/phone to ensure engagement on essential issues continue to progress. The

Stakeholder Engagement Plan was updated in May 2021 (TNP-PLN-SOC-GEN-001-Rev-P6-0) to include an Annex on stakeholder engagement and information disclosure during the COVID-19 pandemic, which has been disclosed on the TANAP website. Further, updated contact information was provided in villages through an 'Operation Contact Info Notice' to ensure muhtars and landowners are aware of the current TANAP contacts. The team's experiences during the Covid period highlight a broad level of comfort of the PAPs/stakeholders with remote communications, but note that PAPs (particularly the elderly) have a preference for receiving phone calls than texts/mail (where not face to face). This is a consideration of how to reinforce key messages, for example, information shared through phone/videocall can be reinforced through a follow-up text messages to ensure this written note can be referred to later by PAPs and other stakeholders. The IESC commends the SI team for continuing to document and deliver good practice engagements, including during the ongoing pandemic conditions.

The social impact KPIs relate to grievance close out rate and completion of informative meetings (with a target of 50 consultation meetings per month, measured quarterly. The completion rate in 2021 of informative meetings was 112 in Q1/21, 167 in Q2 and 234 in Q3, on land use awareness, introduction to the operations phase, and community safety. The KPIs are well met; TANAP could consider to continue strongly with phone/online engagements post-pandemic, where this is appropriate.

The preliminary results from 3rd party ESIA monitoring via muhtar interviews (see also Section 2.3.4.5) indicate that local people have less interest in TANAP's activities, as the operations phase is less intensive, visible construction completed, and agricultural and livestock activities have recommenced. Findings are conflicting in some instances where muhtars have stated that they do not know how to reach TANAP but there are records of complaints they have conveyed to the team in the grievance system. Lastly, 3rd party monitoring indicates that implementation of Community Health and Safety measures were found successful by locals, excepting some concerns raised in the east (MS1-CS1 area) regarding stack gas emission impacts on crop yield and beekeeping. The **IESC recommends follow up/registration on such concerns through the consultation register and stakeholder engagement process and anticipates the TANAP response at the next audit**.

Interviews with PAPs held during this visit and records of engagement shared as evidence during this virtual visit again broadly demonstrate a good awareness of TANAP's activities, an appreciation of the company's responsiveness and good relationships with key contacts in their area. Muhtars reported in interviews that video calls and photo sharing have increased to communicate on and resolve local issues. The IESC highlights specific recommendations included with regards to emergency response (see Section 2.6.6).

Land use restrictions and violations is a key area of management and engagement for TANAP, including the Social Impact team. Since March 2021, the key operational phase document guiding land access is the Land Access Management Procedure (Land Entry, Land Exit and Compensation), Doc. Ref.: TNP-

PCD-LAC-GEN-004. This Procedure was developed with key inputs from the SI team and Land Acquisition team, as well as Projects and Modifications, and the O&M teams. The Procedure describes methods of additional land acquisition, land delivery, land entry, land exit and payments to be made during operation phase for any construction and maintenance activities. The Procedure additionally provides, inter alia, land entry protocol and consent forms, land exit form and the close-out checklist. Land access management will depend on the working area (e.g. whether design modifications or O&M requires land inside or outside the ROW, and on the ownership of the lands; the process and required documentation will vary under different scenarios. The figure below describes the process with a focus on stakeholder engagement requirements.

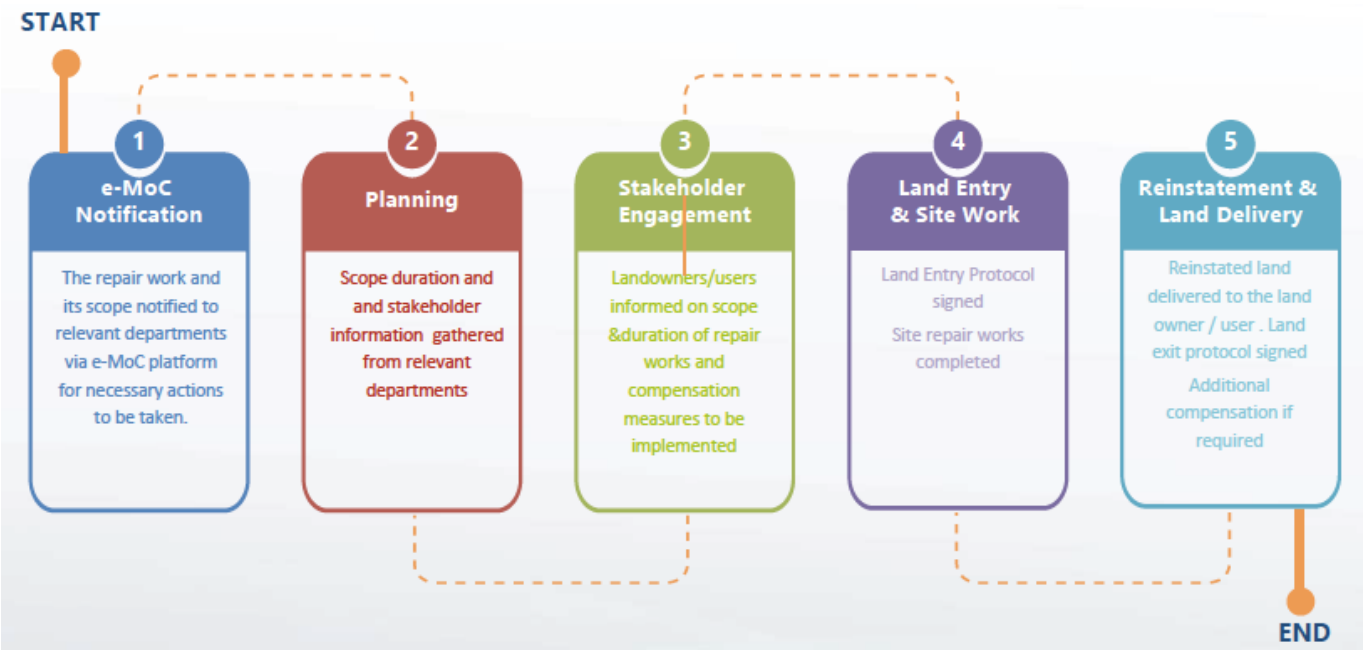

Figure 2.18: Land access management process

Land usage violations (LUVs) are also a key area of engagement. Collaboration between the SI, Permits and Integrity teams is in place to follow up on LUVs reported by the ROW Patrolling teams and the MCC. Monthly follow-ups are carried out to internally monitor performance on open violations. As at the time of the audit, there were 17 open LUVs, from 209 LUVs received to date. Given the number of parcels affected by TANAP overall, this low figure is commendable. For consideration is how TANAP can continue to deliver engaging, informative meetings to keep stakeholders aware and compliant with restrictions. Mukhtars, as elected representatives of their communities, have an ongoing role in disseminating key information to residents, which includes information about TANAP, so provision of tools to Mukhtars to assist them in conveying relevant information will be a key task for TANAP.

The Annual Stakeholder Engagement meeting was held online (via YouTube) in February 2021. This shift in platform (from face-to-face in three locations along the pipeline, to a single online event) was well received. TANAP noted that peak attendance figures (93 persons) were not substantially different to

hosting the in-person events, and proposed that future online events (scheduled for January 2022) should include presentations from other departments (e.g. permitting) and address: land usage violations, 3rd party crossings, emergency response and the grievance mechanism, as well as Q&A as in previous years. The IESC commends the team on using online platforms effectively and considering this targeted restructure of the Annual meeting.

The IESC notes that the SEIP program remains in high demand from stakeholders, and that expectation management is a key issue facing the SEIP team, including differentiation between SEIP and livelihood restoration activities.

2.9.2 Grievance management

The Grievance management procedure was updated in February 2021 in line with Operations requirements, and the TANAP grievance/request information can also be found online[5], including access to the complaints email address. Social impact KPIs relate to grievance close out rate (with a target of 90% each quarter) and completion of informative meetings. In 2021 Q1, the grievance close out rate was 92%, 98% in Q2 and 81% in Q3.

There have been 5,364 grievances registered since the start of the project, up by approximately 200 since the previous audit. At the time of the audit, 5,286 complaints had been closed and 78 grievances were open. Of the 78 open grievances, 62 relate to reinstatement and 35 of those were overdue. Of the 35, 30 have a resolution approach agreed but are waiting for suitable weather conditions to implement actions (e.g. it is not possible to carry out physical works on the land parcels under wet conditions). The IESC notes that physical interventions are limited by the seasons/physical conditions, however, **recommends the grievance procedure is updated to reflect the 'waiting' status (i.e. that a solution has been agreed but cannot yet be implemented due to seasonal/weather conditions)**

Of remaining 16 open grievances, 8 related to land acquisition, 5 to impacts on livelihoods and 3 to damage to property and assets.

In addition to the update to the procedure, the platform in which grievances are captured and managed has also been updated. The formerly used Darzin software, while its database has been restored and is still accessible, has been retired and TANAP has internally built an online grievance management platform, eBA. An extract from the TANAP Lessons Learned handbook describes that OSID was fit for purpose during construction, including as it provided a web-based system for contractors as well as TANAP to register and track grievances. The new platform eBA is currently used to capture grievances; in 2022 an engagement records module will be added. The IESC notes that the new system is built based on experience of using an off-the-shelf system (Darzin) since project commencement; all records

[5] https://www.tanap.com/tanap-project/stakeholder-engagement-complaintrequest/

can now be exported to excel for analysis, and the system now requires key details are entered to ensure that all records are useable and searchable.

2.9.3 Information Disclosure

The SI team stated that TANAP is proposing to update its website. This is strongly encouraged to better align with the operational phase activities and information disclosure demands. As a key information disclosure tool for landowners and users, stakeholders from utilities, municipalities and national organisations, the website should readily reflect the current operational issues and processes, e.g., land usage violations, crossings information, grievance management and reporting on key KPIs. The IESC notes that the ESIA and other key, disclosed documents should remain available on the website.

2.10 Biodiversity

2.10.1 Assessment and Identification of Impacts

TANAP has identified the Project risks and impacts on biodiversity and ecosystem services through its ESIA assessment in early phases of the Project development. A priority throughout the Project's ESIA process and construction phase was the avoidance of potentially adverse ecological impacts. This has resulted in numerous design modifications and the development of a suite of mitigation measures to prevent many negative impacts, which were implemented during the construction phase. A detailed Biodiversity Action Plan (BAP), Ecological Management Plans, and Special Areas Reinstatement Methods Statements for all terrestrial and freshwater critical habitats were developed to guide the biodiversity impact avoidance, mitigation, and restoration measures.

The Project's biodiversity assessment studies and mitigation plans were reviewed during the initial Environmental and Social Due Diligence (ESDD) in 2016. The ESDD found that the initial assessments and management planning for biodiversity did not adequately demonstrate a net gain in critical habitat and no net loss of priority biodiversity features due to the assumption that there were no residual impacts to these habitats and features in the initial planning and assessment documents.

Gaps identified in habitat assessments from the ESDD resulted in specific requirements within the Project's Environmental and Social Action Plan (ESAP). The Project adjusted its BAP to better define and consider residual impacts to critical habitat (CH) and priority biodiversity features (PBF) and the need for offsetting where bio-restoration of the RoW could not fully mitigate disturbance impacts. At the current time of writing, the BAP is scheduled to be reviewed and updated in 2022 and the Site-specific Biodiversity Offset Management Plans are due to be produced in 2022, for forest and steppe offset projects.

2.10.1.1 Overhead Transmission Line Impacts to bird species

The IESC's audit in October 2018 observed that not all mitigation measures recommended by the Overhead transmission Lines (OHL) and anode bed line ESIA for mitigating potential impacts to bird

species were implemented due to the assessment report recommendations being available after design and construction of the powerlines. The IESC recommended (in October 2018) TANAP to include the monitoring of impacts to bird species as identified in the OHL environmental assessment and that the performance of any mitigation measures be included in the post-construction monitoring programs for the Project.

TANAP have continued the bird monitoring activities as required by the ESIA of OHLS and Anode Bed Lines; monitoring has been completed in both spring and autumn in 2019, 2020 and 2021 in high-risk areas. The aim of the bird monitoring study is to assess potential impacts of the OHL to migratory bird species flight behavior and/or if the OHLs cause bird mortality due to collision/electrocution. During the post spring migration monitoring in July 2019, three carcasses of white stork were found in close vicinity of BVS21 OHL. It is believed, from the burn marks on the carcasses, that electrocution after collision with the OHL lines caused the mortality, indicating direct potential impacts to birds from the OHLs.

Cinar repeated the bird monitoring for autumn 2019 for the same areas identified as high bird risks. The autumn 2019 monitoring found 16 carcasses along the monitoring routes. Most (14 out of 16) of the carcasses were either LC or NT status, and two were Turtle dove *Streptopelia turtur* (VU on the IUCN List) carcasses found at the DSW and CS7. Cinar stated the possibility of the turtle dove had been killed by illegal hunter as there were no evidence for collision with OHLs for these cases. Out of the 16 carcasses, Cinar considered that 11 of them were had potentially been caused by collision with OHLs, rather than electrocution as the OHLs have been designed to reduce the likelihood of electrocution occurring.

Based on the Cinar's 2019 monitoring results, TANAP have continued to commission the bird monitoring in 2020 and 2022 only at BVS21. On all subsequent survey visits (autumn 2019, 2020 and 2021; spring 2020 and 2021 and summer 2021) no further bird carcasses were observed. TANAP have also made the decision to continue bird monitoring at this location until an evidenced decision can be made as to the need for remedial mitigation to be implemented or not.

2.10.1.2 Residual Impact Assessment

Golder, in collaboration with Çinar, developed a Biodiversity Offset Strategy (BOS) in 2017 with scheduled offset implementation starting in 2019. The strategy did not identify specific biodiversity management actions but identified potential offsets and additional conservation actions in accordance with good international practice to achieve No Net Loss (NNL) or Net Gain (NG) outcomes relative to the residual affects identified for Natural Habitats, Priority Biodiversity Features (PBF) and Critical Habitats (CH). The strategy defined the approach to stakeholder engagement, monitoring and adaptive management, including mechanisms that allow re-calculation of net loss and gains and facilitate adjustments to the offset strategy to achieve the stated objectives.

Further information on the status of the BOS is provided below under the heading “Biodiversity Offset Planning and Implementation”, in summary, the site-specific biodiversity offset management plans are still being developed at this time but all of the preliminary works for setting up the projects were completed in 2021.

2.10.2 Biodiversity Management Planning

During the construction phase, TANAP implemented the mitigation hierarchy to a good standard. The previous IESC audit and site visits undertaken in October 2018, June 2019, and November 2019 identified no major non-compliances against this performance requirement.

With the completion of the TANAP and TAP interconnection pipeline line-fill activity in November 2019, the Project entered into its operation phase. The Project ESIA identified no significant impacts from the onshore and offshore pipeline operation to terrestrial, freshwater and marine water biodiversity species and habitats. Therefore, the main management measures for biodiversity impacts during operation have now shifted to monitoring of the bio-restoration success, and to monitoring the recovery of the critical habitat triggering species in critical habitat areas along the pipeline route.

The operational phase will also include the development and implementation of the long-term biodiversity offset programmes. These represent TANAP’s long term commitment to achieve No Net Loss (NNL) or Net Gain (NG) for priority biodiversity features or critical habitats, in habitats that are deemed impossible to fully restore.

The Project Operational Phase Environmental and Social Management System (ESMS) includes the following management documents with regard to biodiversity and ecosystem services management:

- Environmental and Social Management Plan (TNP-PLN-ENV-GEN-008)
- Ecological Management Plan (TNP-PLN-ENV-GEN-010)
- Operations Environmental Monitoring Plan (TNP-PLN-GEN-009)
- Biodiversity Action Plan (CIN-REP-ENV-GEN-017-Rev-P3-11)

Previously, each construction contractor had developed management documents for ecological management and monitoring during the two years of warranty period after the pipeline mechanical completion. This has now however been completed, and the two-year warranty period has ended.

2.10.2.1 Environmental and Social Management Plan

The ESMP is a comprehensive document providing general a framework approach of environmental management systems of the Project. The ESMP used key principles and management system requirements (i.e. Plan-Do-Check-Act) by the ISO 14001 standard.

2.10.2.2 Ecological Management Plan

The Ecological Management Plan (TNP-PLN-ENV-GEN-010) is the main management document for ecological impacts during the Project operation. It outlines the processes and measures to be implemented to manage ecological impacts during the Project Operational Phase. Its scope includes minimising habitat disturbance, ongoing bio-restoration activities, biodiversity offsetting, invasive species, pest management, and protecting flora and fauna. The key post-construction biodiversity impact mitigation measures will be the continued maintenance of reinstated areas and the undertaking or implementation of remedial bio-restoration activities, in special areas (i.e. ecologically sensitive areas, critical habitats etc.) identified in the BAP.

The following KPIs relating to biodiversity management during operations have been included in the Ecological Management Plan.

- Percentage of vegetation ground cover, calculated in terms of original ground cover (post – reinstatement)
- Number of Project related injured / dead fauna
- Number of disturbances to reinstated areas
- Number of incidents / damages to critical habitats

2.10.2.3 Operations Environmental Monitoring Plan

This plan outlines monitoring requirements of all ecological management activities during the Project's Operational Phase. It is the main management tool for TANAP to monitor and document the Project's environmental compliances requirements and identify any issues in the environmental management that need corrective action in a timely manner. TANAP's approach to inspect its environmental impact management measures implementation status, and its processes to assess the management measures effectiveness are summarised in this Monitoring Plan.

TANAP uses the following methods to assess its environmental performances against the Project's environmental commitments during operation:

- Site Inspection

- TANAP's site based QHSE personnel (ROW teams) at least weekly basis

- Audits
  - Internal audit by qualified and approved personal at least once a year
  - External verification
    - IESC's annual audit
    - Annual Biodiversity Offsetting Evaluation by independent third party to evaluate the offsetting activities during operation
    - Daily RoW patrol and maintenance checks by contracted companies to monitor a range of items including pipeline integrity, conditions of reinstated and biorestoration areas, third party activities along the RoW etc.
  - External Audit to Offshore Pipeline Inspection Contractor

- Action Tracking
  - All non-conformances identified by the above monitoring programmes to be registered in the Action Tracking System for follow up, corrective action, and close out.

The following monitoring in relation to ecology and biodiversity is included in the Operations Environmental Monitoring Plan:

- Annual Physical Monitoring along the entire RoW giving priority to the environmentally sensitive locations (steep slopes, side slopes, erosion prone areas, critical habitats, river crossings etc.)
- Annual Vegetation Cover and Diversity monitoring at stratified random sampling locations
- Annual Flora Monitoring in Critical Habitat areas identified by the BAP
- Annual Terrestrial Fauna Monitoring in Critical Habitat areas identified by the BAP
- Annual Aquatic Fauna Monitoring in Critical Habitat areas identified by the BAP
- Annual Reforestation Monitoring within ROW and reforestation offsetting locations

All ecological monitoring methods, except for the Physical Monitoring, are reflected in the approved BAP (CIN-REP-ENV-GEN-017) and Biorestoration Monitoring Plan (CIN-PLN-ENV-GEN-014) requirements.

The key ESMS documents appear overdue for review and revision. The biodiversity related management requirements in the Ecological Management Plan, and Environmental Monitoring Plans were adopted from the ESIA and BAP, they were last reviewed in and 2017. It is however understood that to keep the BAP current, it will be reviewed in 2022, and retained as a document to inform the measures needed if and ongoing or new construction activities are required during the operational phase. While the need to review the BAP is not considered a compliance issue, IESC recommends that the BAP is reviewed as soon as possible, and that TANAP document all plan reviews and keep document revision controls updated for tracking.

2.10.3 Implementation of Mitigation

The key biodiversity mitigation measures implemented during the Operations Phase are as follows:

- Completion of reinstatement
- Biorestoration and aftercare
- Invasive species management
- Biodiversity offsetting.

As this audit has been taken virtually due to travel restrictions (COVID-19) the implementation of mitigation has been discussed in the following sections based on a review of available reports and photographs provided by TANAP and their appointed sub-contractors.

2.10.4 Restoration and Rehabilitation

By 2020, all bio-restoration and reforestation activities have been completed along the pipeline ROW, except the LOT4 reforestation which was found to be 81% completed. For this (2021) IESC review, TANAP have reported that the bio-restoration and reforestation of Lot 4 is now 100% complete and so are compliant with their restoration and rehabilitation commitments.

2.10.5 Monitoring

2.10.5.1 Summary of ecological monitoring during operations

As reported by TANAP's environmental department during this audit, no significant biodiversity management related non-conformances have occurred to date and no incidents have been recorded in the Action Tracking System.

The IESC's review findings of the construction contractors after care monitoring, and the ecological monitoring by third party monitoring companies is summarised below. The after-care monitoring period is two years, which has now been completed for Lot's 1 – 4. TANAP have informed that IESC that ongoing monitoring will continue, with the ROW team patrolling the pipeline and reporting on areas where remedial measures are considered necessary, or where incidents have occurred. This should continue for the lifetime of the project. Other more targeted monitoring (such as for the critical habitats) will continue as stated in the BAP and other documents.

2.10.5.2 After Care Monitoring for LOT 1

TANAP provided the LOT 1 construction contractor FERNAS's 8th aftercare monitoring report (FRN-REP-ENV-PL1-050 covering June, July and August 2020 provided for review for this audit. This represents the final aftercare report (eight quarterly reports covering two years after care have now been produced). The aftercare agreement ended on 25th December 2020.

FERNAS's 8th and final quarterly monitoring made the following biodiversity highlights:

- 59% of the total bio-restored ROW length is covered by the monitoring. The remaining areas were inaccessible due to environmental conditions.
- 100% of the bio-restored areas had target vegetation cover (i.e. at least 70% coverage).
- 30 target species were observed in 23 terrestrial critical habitats during the monitoring period. Combined with the previous monitoring results, a total of 30 of the 33 target species have been observed to date.
- 35,766 trees have now been planted, to compensate 35,337 trees felled during construction phase. These have been planted within 39 reforestation areas, totalling a length of 35,095m. None were found to have failed (dry trees) during this 8th monitoring session.

The IESC is satisfied with the current details of the level of aftercare monitoring at LOT 1.

2.10.5.3 After Care Monitoring for LOT 2

The LOT 2 contractor Sicim-Yuksel-Akkord JV's after care monitoring report (SYA-MST-ENVIRONMENT-PL2-012-P4-1) covering the July to December 2020 period was provided by TANAP for review. This monitoring scope included areas where bio-restoration works were done and terrestrial critical habitat areas.

The monitoring report highlights the following biodiversity elements:

- 452 bio-restored areas visited for slope breakers and vegetation cover monitoring. Two of the proposed areas are considered N/A as no slope breakers were installed, so no bio-restoration was required in these areas (SP4 75 and SP4 127).

- Of the 452 bio-restoration areas, most were found to have 100% vegetation cover recovery. The rest had vegetation cover ranging between 70% (4 areas), 80% (3 areas) and 90% (1 area).

- Plant species regrowth is assumed to have met the target 70% at all 26 Terrestrial Critical Habitat sites monitored although this is not clear in the report presentation. The report did however provide photos of the Critical Habitat sites visited. Some photos show that a small number of sites were visited during a period of snow cover, which isn't optimal for a vegetation survey.

- All of the 303 reforested areas monitored had 70% forest growth success. A small selection of photos showing reforestation activities was provided in the repot.

Within the IESC report (2020) it was noted that some areas shown in the site photos did not seem to have the vegetation growth success as reported in the main report and appeared to be much less than the reported 100% vegetation coverages for these sites. For the 2021 report this does not appear to be the same, when the age, state and surrounding vegetation cover has been taken in to account. Thin dry soils can appear to have sparse vegetation cover, but when compared to undisturbed surrounding areas, they have actually achieved 100% vegetation cover (comparatively).

The IESC is satisfied with the current details of the level of aftercare monitoring at LOT 2.

2.10.5.4 After Care Monitoring for LOT 3

The LOT 3 contractor: Tekfen Construction's Aftercare monitoring report (TKF-REP-CVL-PL1-009-P4-1) covering July – September 2020 for this audit. This audit report represents the final audit, following two years of aftercare monitoring. Due to COVID-19 however, the field studies were conducted in October 2020.

- 135 bio-restoration areas visited for slope breakers and vegetation cover monitoring. The remaining 38 sites were not visited as they excluded from the monitoring due to private ownership.

- All bio-restoration areas visited had 80-100% vegetation cover except some areas which have been ploughed fully or partially (15 areas).

- One bio-restoration area (KP 1143+646-1143+766) damaged from road construction.

- All of the 86 river crossings monitored are reported to be in good condition with natural riparian vegetation growing, except for some crossings where farmers ploughed the area (e.g. RVX4-1029).

- All eight terrestrial Critical Habitat areas were monitored. While they generally achieved target levels for vegetation cover the target species richness was not achieved in some areas. Target species of CH were often not recorded, this may be due in part to the timing of the survey, with October often being a suboptimal month for botanical surveys.

- CH52 and CH53 are under pressure from farmers, with areas of each site having been recently burnt. CH54 has been damaged due to recent road works, which have involved the stockpiling of soil on the CH. CH55 has suffered from heavy agricultural grazing, disturbing natural vegetation populations.

Monitoring site photos included in the report demonstrate show that bio-restoration success has been achieved along the LOT3 ROW. However, as observed for the LOT2 monitoring report discussed above, the photographed vegetation cover of some bio-restoration areas appear to have less vegetation cover than is reported. Again however, this may be due to the time of year that the photographs were undertaken, when dieback of annual/perennial pants which have occurred. It is noted that in the survey data tables, the author does state that in some cased vegetation is considered 100% as it is comparable to neighbouring undisturbed areas.

The IESC is satisfied with the current details of the level of aftercare monitoring at LOT 3.

2.10.5.5 After Care Monitoring for LOT 4

IESC reviewed the LOT 4 contractor PUNJ LLOYD–LİMAK–KALYON JV's (PLK) Aftercare monitoring report (PLK-REP-ENV-PL4-026 P4-1) covering the June, July and August quarter of 2021. Biodiversity scope of the monitoring included success of bio-restoration activities, riparian vegetation conditions, restoration progress of critical habitats and species of conservation concern, and success of planted trees on reforestation sites.

Monitoring report highlights (Biodiversity):

- 72 out of 432 bio-restoration areas were not visited as they have been excluded due to being under private ownership.

- 346 out of the 360 bio-restoration areas visited with slope breakers for vegetation cover monitoring, the monitoring found four areas ploughed by farmers. Of the areas visited, 305 were found to have vegetation cover at 70% or greater. Three sites had been damaged by forestry activities, five sites had been ploughed, 14 sites could not be reached on foot, and two were restored during 2020. 31 sites had less than 70% vegetation, but most had still surpassed 50% revegetation levels.

- 34 River Crossings were monitored, and no significant issues were identified with the riparian vegetation success and extent of erosion control.

- All of the 10 Terrestrial Critical Habitats (CH58-CH67) were monitored; however, the site visit was undertaken in August, which is out of the blooming season, which makes the target species harder to record when not in flower. As a result, population estimates were generally lower that would be expected. That said, the general vegetation seen in the critical habitats was considered almost completely restored.

- Monitoring of nine Freshwater Critical Habitats (i.e. FCH19-FCH27) found well-established habitats in all sites visited; however, it is not clear if target species presence was observed during the monitoring.

- Reforestation has been undertaken along a 125km stretch of Lot 4 by the Ministry of Forestry. The maintenance and repair works are under the responsibility of the Ministry for three years. The tree planting was completed by 12 April 2021.

The reviewed Aftercare monitoring report for LOT4 indicated successful bio-restoration in most of the special areas monitored.

The monitoring did not observe the target SCCs for the critical habitat areas during this monitoring campaign, but the habitat restoration was a success for all critical habitat areas as is reported. The Project ESIA identified impacts to the CH and FCH areas are not significant, thus (as previously reported) successful establishment of the habitats is expected to support the target species population for the longer term.

The IESC is satisfied with the current details of the level of aftercare monitoring at LOT 4.

2.10.5.6 Ecological Monitoring by Independent Third Party

TANAP has engaged with ENVY for its independent third-party ecological monitoring contractor. ENVY has responsibility to monitor all CH areas and Species of Conservation Concerns (SCC) along the TANAP pipeline ROW to meet the biodiversity monitoring requirements specified in the BAP. IESC reviewed 15 monitoring reports covering March 2019 to October 2021. ENVY's monitoring reports covered all terrestrial and freshwater critical habitat areas and SCC. Timing and methods of the monitoring meet the BAP requirements. The monitoring also covered general site conditions including vegetation recovery states and any intrusions to the critical habitat areas by third parties, and invasive species growth. The monitoring report shows evidenced recovery of the SCC in the critical habitat areas for tracking. But to observe long term trends, the reports do not coverer a sufficient time period. Based on ENVY's monitoring and details of the monitoring reports, it is concluded that TANAP meets its biodiversity monitoring commitments for the critical habitat areas and species as required by the BAP.

The following observations have been noted from the biodiversity monitoring reports for TANAP's attention:

Within the 2020 IESC report some potentially conflicting monitoring findings between the contractor's Aftercare Monitoring, and Independent Third-Party Monitoring findings were noted. For example, the ENVY's 2020 flora monitoring report (ASE-REP-ENV-GEN-034-P4-C) found zero individuals of *Thymus leucostomus* species on the CH58 ROW (in the monitoring plots 100^{m2}) during the monitoring in 2020 (one in May, and two in June), except the previously observed 11 individuals of the species off the ROW. On the contrary, the PLK's Aftercare Monitoring Report (PLK-REP-ENV-PL4-023) for the same month (i.e. June 2020) stated very healthy *Thymus leucostomus* population on the CH58 ROW. For the PLK 2021 report there are no such conflicts, as the site visit was undertaken at a sub optimal time of year, so presence has not been stated for many of the CH target species. Requisitioning the ENVY reports with the contractor's aftercare monitoring reports is a difficult task, due to the different ways in which the data has been presented. However as the aftercare period has now been completed, going forward, TANAP will need to ensure that ongoing surveys are undertaken by competent surveyors, at a suitable time of year, and that a standard reporting template is considered, so that results can be more easily compared if and when required.

2.10.6 Conservation of Biodiversity

2.10.6.1 Critical habitats

The Biodiversity Action Plan (BAP) includes a critical habitat assessment. There are 67 Terrestrial and 27 Freshwater Critical Habitat areas have been identified along the Project RoW in the Biodiversity Action Plan (CIN-REP-ENV-GEN-017) for the Project. No Marine critical Habitat is identified for the Project. The BAP determined impact mitigation and reinstatement measures, monitoring methods/timing, and impact mitigation achievement including criteria for all identified Critical Habitats.

The independent (third party) monitoring results set out in: ASE-REP-ENV-GEN-062-P4-C) did not list any critical habitat as being significantly damaged or intruded upon; but simply described the number of species present and provided a general description of each CH area. What was notable was that of the 56 target CH species, only 25 were found online (within the bio-restoration areas) whereas offline, but adjacent to the restored areas 47 target CH species were found. This finding is an agreement with the aftercare reports, which while they state that vegetation cover is good, species diversity and richness is often lacking, and in many cases the target CH species have not been found.

After Care Monitoring Report for LOT 3 (TKF-REP-CVL-PL1-009-P4-1) by Tekfen stated significant issues at the CH54, CH55 and CH57 due to activities such as road construction and grazing. These activities may have been outside of the TANAP's full control when it happened, but it is the IESC expectation that this type of incident is recorded in the Action Tracking System for investigation, further reference and initiating necessary remedial actions if needed.

2.10.6.2 Invasive species

The management of invasive species in the Project RoW was identified in the BAP as a significant threat to achieving bio-restoration throughout the Project. Contractor reinstatement plans include control of invasive species (i.e. planting of native plants and trees, consideration of invasive potential and adverse impacts to native vegetation if new plant species are selected) and monitoring. TANAP's Ecological Management Plans specified the Invasive and Pest Species control and management actions to be taken when/if required. Section 3.4.8 of the Ecological Management Plan described how TANAP will monitor and manage the invasive species for the Project impacted areas, particularly in high-risk areas such as critical habitat areas.

The previous (2020) IESC report stated that ENVY's Physical and Ecological Monitoring in July 2019, August 2019 and August 2020 indicated an extensive growth of invasive species in some of the critical habitat areas. However no mention of invasive species was made in the Botanical report: ASE-REP-ENV-GEN-062-P4-C. It is understood that the omission of the term "invasive species", is because ENVY's botanical experts have confirmed that the species previously considered as invasive, are in fact opportunist, and are native, or naturalized to Turkey; therefore, they do not trigger the need for ameliorative action that the finding of an invasive species would, so have been listed in the text as present, but not labelled as invasive species..

As botanical monitoring is an ongoing process, it is still TANAP's responsibility (Section 3.4.8 Ecological Management Plan) to determine if invasive species are present and the severity or threats, that such a species may pose, and to take effective mitigation and management measures if needed. If any invasive species are identified in the coming years, then the species and location should be logged in TANAPs Action Tracking System, so that appropriate action may be taken where required.

2.10.6.3 Biodiversity Offset Planning and Implementation

The Project's BAP and Biodiversity Offset Strategy (BOS) provide a framework for TANAP to achieve a net gain in Critical Habitat as defined by IFC PS6 and no net loss of priority biodiversity features as defined in EBRD PR6. TANAP has contracted Golder to develop the Biodiversity Offset Management Plan (BOMP) to meet IFC PS6 offsetting requirements. Golder completed the additional studies for the development of the BOMP in 2018-2019. These studies included review of legal and institutional framework, refining the baseline value of degradation of natural habitats to improve the accuracy of offset calculation, identification of potential offset sites, and stakeholder consultations for feedback for the BOMP development.

The draft BOMP was shared with EBRD and IESC consultants in February 2020 for review and comments along with two offset documents i.e. the Forest Offset Project and Resilient Steppe Offset Project. The IESC and its biodiversity offset contractor SLR reviewed the BOMP and Offset Plan documents to assess their compliance with the key offset requirements by international lenders.

Addressing the comments on the draft offset projects, Golder issued a Memorandum of Understanding (MOU) in March 2020. The MOU suggested three steps approach (Biodiversity Offset Strategy, Biodiversity Offset Management Plan, and site-specific Offset Plans) for practical and efficient implementation of the offset projects.

TANAP is progressing well towards developing the BOMP and Site-Specific Offset management plans. To date the following has been undertaken:

- Field surveys for target species (forest and steppe) and seed collection in steppe habitats
- Socio-economic field surveys steppe habitats
- Evaluation and update of forest management plans with a conservation perspective
- Stakeholder meetings (forest and steppe)
- Introduction training on holistic range management in steppe habitats

TANAP have informed the IESC that the site-specific management plans will be made available by April 2022 for review. They will be developed based on the findings of the 2021 surveys as well as feedback that has been provided previously during the 2020 review. Full comment will be made on the site specific biodiversity offset management plans once they have been issued for review.