ESIA Italy
Section 10 Overall Project Assessment
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10 CONCLUSIONS

10.1 Introduction

The design of the Trans Adriatic Pipeline (TAP) represents the outcome of feasibility studies performed since 2006, comprising detailed assessments of alternatives through Greece, Albania and Italy, including the pipeline route and site selection of associated facilities (i.e. compressor stations, block valve stations, pipeline receiving terminal etc.), as well as technical options.

This report presents the Environmental and Social Impact Assessment (ESIA) covering the entire pipeline route in Italy (45 km offshore and 8.2 km onshore) and associated facilities, hereinafter referred to as ‘the Project’.

The process of pipeline route selection in Italy was undertaken in several iterative stages that included the commencement of stakeholder engagement activities in 2006. During the basic engineering phase of the Project, five main routing alternatives were investigated. The process considered the technical / logistical aspects, key constraints such as environmentally sensitive and protected areas, cultural heritage or socioeconomic aspects and the selection of a suitable landfall site for each alternative. Eventually one ‘base case’ option was selected for a more detailed study.

However, through subsequent stakeholder consultations presenting this base case route, two key issues arose with regard to the proposed location of the landfall for the offshore pipeline and Pipeline Receiving Terminal (PRT) facility (refer to Section 2 for further detail). As a consequence, and in consideration of the issues raised, TAP AG revisited the route selection process, reanalysing the available information (particularly for the landfall and PRT) to select an ‘optimised’ base case route.

The optimized base case route and associated facilities were studied in detail through the ESIA process.

10.2 The ESIA Process and Applicable Standards

Through the ESIA process, TAP AG has conducted an evolving programme of environmental and social studies for the Project. These have included: desktop studies; wide-ranging field surveys (offshore and onshore) to collect baseline data on physical, natural, social and cultural heritage conditions in the Project’s area of influence; inputs to site selection of associated facilities and design of Project components; plus, an extensive stakeholder engagement programme (including conducting 123 meetings with national, regional and local stakeholders between January and July 2013).
The ESIA has been prepared to comply with Italian legislation, international environmental and socioeconomic requirements, with specific regard to those of the European Union Legislative Framework and in alignment with performance requirements of the European Bank for Reconstruction and Development (EBRD). In addition, the Espoo Convention on Environmental Impact Assessment in a Trans-boundary Context has been considered where the influence of the Project crosses international borders or territorial waters (i.e. with Albania).

The aim of the ESIA process is to ensure that all potential impacts on the physical, biological and human environment that are attributable to the Project are fully evaluated, reported and, where necessary, managed and mitigated until residual impacts are considered to be within acceptable levels.

Impact predictions have been made based on the current Project design and baseline knowledge from desktop studies and field surveys supplemented with the most current data, methods and scientific knowledge publicly available at this time to minimize the extent of uncertainty in the assessment.

In line with best practice, this ESIA has adopted a precautionary approach to the identification and assessment of impacts. Where it has not been possible to make direct predictions of the likely level of impact, limits on the maximum likely impact have been reported and taken into account for the design and planned implementation of the Project (including the use of appropriate mitigation measures). Where the magnitude of impacts could not be predicted with certainty, the ESIA team has used its professional experience and available scientific research to make a judgement on whether a significant impact is likely to occur or not. This conservative approach has been adopted throughout the assessment.

Further details on key stages and activities completed, and on-going, through the adopted ESIA process are given below:

- Extensive baseline data collection through desktop investigation and a programme of field surveys (refer to Section 6 and supporting Annexes for detailed information), resulting in the production of a Project-specific Geographic Information System (GIS) database of environmental and social information for use in Project design.

- The pipeline route refinement phase has continued in parallel to the ESIA study, taking into consideration the key environmental, socioeconomic and cultural heritage findings identified. The route refinement process has in turn fed the ESIA process, so the ESIA Report has been updated based on the refined route.

- Impact identification and scoping was undertaken early in the ESIA process in a systematic way by the interdisciplinary ESIA team. As the Project evolved and more design data were available this was revisited and baseline data reinterpreted as necessary.
An ESIA Scoping Report was prepared by TAP AG for the Project in Italy and formally submitted to the Italian authorities in May 2011. This described the process of route alternatives investigation and route selection, the main components and key features of the Project, the potential environmental and social issues involved with Project implementation, potential mitigation, and the proposed ESIA study programme. Official Scoping Advice was issued by the Italian Ministry of Environment in November 2011 and by the Italian Ministry of Cultural Heritage in February 2012.

Stakeholder engagement is a key element of the ESIA process. The purpose of stakeholder engagement is to allow stakeholders to interact with the decision making process, express their views and influence mitigation and technical solutions to concerns voiced during the process. In accordance with the European Bank for Reconstruction and Development (EBRD) Performance Requirement (PR) 10 on stakeholder engagement, and as previously mentioned, TAP AG has been engaging with stakeholders in Italy since 2006 (i.e. early in the environmental and social appraisal process to assist develop the scope).

The impact assessment has been informed by close interaction with the Project design team on such matters as working methods, best available technology and mitigation measures that will be integrated into Project design. Where appropriate the impact assessment has included quantitative modelling techniques (e.g. for marine sediment disturbed during construction and dust emissions associated with the construction of the Pipeline Receiving Terminal). In all instances the impacts have been assessed against rigorous ‘significance criteria’ that in turn were informed by standards and international good practice.

Through the ESIA, TAP AG has identified and committed itself to numerous measures designed to avoid, mitigate or offset adverse impacts, to minimise and manage risks on the environment, workforce and local population. Where possible, enhancing positive effects of Project implementation have been identified.

A detailed Environmental and Social Management and Monitoring Plan (ESMMP) reflecting the above will be fully integrated into an Environmental and Social Management System (ESMS) which is designed to ensure that all mitigation measures and commitments made by TAP AG in the ESIA will be implemented in practice both by TAP AG themselves and the contractors working on behalf of TAP AG. This system will be developed after the finalization of the ESIA and in advance of any key contracts for construction being awarded.

The ESMMP will be maintained as a ‘live’ document to allow environmental and social performance to be monitored, audits to be conducted, and corrective actions / continuous improvements to be made throughout the Project phases as part of TAP AG’s overall management system.

Through these key stages and activities the ESIA has systematically and comprehensively examined all identified aspects of the proposed Project, which have the potential to give rise to adverse, as well as positive environmental, socioeconomic and cultural heritage impacts.
The Trans Adriatic Pipeline is a large scale linear project aiming to construct and operate a high capacity, long distance gas pipeline system.

In Italy, the main impacts of the Project will arise from the construction activities, predominantly during the onshore installation of the pipeline and associated facilities. However, pipeline construction is a well-understood activity using standard techniques and equipment enabling all of the potentially significant impacts to be identified and assessed.

Impacts associated with the operation of the pipeline system will be largely limited to the Pipeline Receiving Terminal and the regular maintenance and inspection schedule.

An overview of the main findings of the ESIA is given below.

10.3.1 Findings regarding the Physical and Biological Environment

Offshore

Potential impacts of the construction and operation of the 45 km pipeline in Italian waters on the physical offshore environment include: limited intervention works physically altering the seabed and re-suspending sediments that indirectly affect water quality; polluting air emissions from construction vessel engines; and the long term presence of the pipeline on the seabed affecting local marine processes.
Direct physical alteration of the seabed will occur from trenching and anchor handling activities. However, the formation of trenches will not in itself represent a significant impact on the seabed, since any effects will be temporary and highly localised. Spreading of marine sediments will also occur from such construction activities although it can be expected that any sediment plume will be limited in extent and duration.

Although the broader marine environment hosts a number of nature conservation areas that have been designated to protect sensitive habitats and species, the proposed pipeline will not directly affect any of these. The closest marine nature conservation site, Le Cesine Site of Community Importance, is located about 2 km north of the Project landfall and shore approach. The site is designated to protect priority habitat *Posidonia oceanica* seagrass beds.

Some patches of *Posidonia oceanica* have been identified in the nearshore area along the proposed pipeline route. However, these will not be disturbed as the pipeline will pass beneath these in a microtunnel; survey work has confirmed that no *Posidonia oceanica* is present in the area of the microtunnel offshore exit where Project activities will disturb the seabed.

Benthic macrofauna sampled in the coastal area showed that no rare or protected species were present. Marine fauna recorded or identified in the area include species of commercial interest (e.g. hake, sardines, albacore, rose shrimp, octopus and squid) and a few marine mammal species (e.g. bottlenose dolphins). Some of the fish species, such as hake, spawn in the coastal waters off Puglia. The only marine reptiles in the Adriatic Sea are sea turtles. Loggerhead and green turtles nest within the Mediterranean basin but reports of nesting in the proximity of the Project landfall area are limited. The seabird population in this area is not particularly abundant.

Project activities with the potential to affect the biological offshore environment include limited seabed intervention works (i.e. dredging, microtunnel exit trenching), pipe-laying and anchor handling. Potential impacts to marine flora and fauna include physical loss of habitat, burial and smothering of sessile species from increases in sedimentation and turbidity, and to a lesser extent noise and vibration disturbance.

Measures incorporated through Project design, such as incorporating a microtunnel for the landfall and limiting the section of seabed trenching, and mitigation to be implemented during construction and operation, such as careful anchor spread and restricting the period of nearshore works, will limit any potential impacts on the biological offshore environment. Thus, in general, Project activities are considered to cause residual impacts that are either not significant or of minor significance.

In the long term, although the physical presence of the pipeline and various support structures during operation will affect local physical processes (i.e. sediment accumulation / scouring) to some degree, it may actually increase habitat diversity as the solid surfaces becoming colonised by marine organisms.
Onshore

Potential impacts of the construction and operation of the 8.2 km pipeline and associated facilities – namely the PRT and a block valve station (BVS) - on the physical and biological onshore environment include: air emissions, such as dust and exhaust gases, and noise emissions produced during construction activities; accidental pollution of soil, surface water and groundwater resources; habitat fragmentation and disturbance of wildlife; and impacts on the visual amenity from the permanent above-ground installations.

Dust emissions produced during the 18 month construction of the PRT are considered to be of moderate significance (compared against IFC limits). During these activities, measures will be put in place in order to limit any dust produced (i.e. spraying dusty work areas / access roads with water to suppress the dust, limiting the speed of construction vehicles; and maintaining the condition of the access roads).

The most significant Project impact predicted during construction, however, will be the temporary noise impact from precommissioning activities on the nearest sensitive receptors. In order to minimize the effect TAP AG is committed to mitigating the residual noise impact to an acceptable level with a range of solutions currently being considered comprising identifying lower noise equipment, improved noise abatement measures, relocation of the compressor spread and, as a last resort, temporary relocation of impacted residents.

Soil and water resources may potentially be polluted by accidental spills from vehicles, storage tanks and chemical stores, metalworking and welding residues, and process waste and effluent. However, such potential sources of impact will be largely avoided through the application of appropriate mitigation measures, such as proper storage of pollutants and proper waste management. A Pollution Prevention Plan will be implemented to avoid / minimise the risk of accidental pollution during construction.

In areas with karsic formations and sinkholes, excavation works could interfere with such structures. Geophysical investigations together with hydrological / hydraulic compatibility studies will be used to avoid potential interferences with these areas.

During construction, a total of about 37.5 hectares (ha) of land will be required by the Project. Considering that mitigation measures will be taken to avoid physical degradation of soil and the land within the working strip will be restored to its original condition, including the reinstatement of dry stone walls. Other significant landscape features disturbed during construction will be considered on a case-by-case basis and the need for and nature of their reinstatement agreed with the relevant authorities / landowners. On this basis the significance of any residual impact is considered to be minor.

Project elements that will affect the landscape and visual amenity of the local area are the pipeline working strip, new access roads and other work sites during construction, and the presence of permanent above-ground facilities (i.e. PRT and BVS) during the operation.
In the past, the sub-region of Salento has been affected by extensive farming and other activities, reducing and fragmenting its natural habitat and resulting in a loss or alteration of the biodiversity. The onshore Project area is indicative of the region, with a general lack of natural habitats and low biodiversity, predominantly due to the use of land for olive plantations.

The most significant section of floral diversity, where endemics and rare plant species can be found, is limited to a wetland area near the coast and in proximity to the landfall and BVS site. The Project footprint does not encroach into any protected conservation areas.

During construction flora and vegetation will be removed from the pipeline working strip and other construction areas, such as the PRT site. However, natural or semi-natural plant communities are only marginally affected by the Project. Potential impacts to fauna will be restricted to the Project work sites and immediate surroundings (up to 500 m from source of impact), and mostly result from noise disturbance, deposition of dust on vegetation / habitat and possible vehicle collisions. However, due to lack of wildlife it is considered that any impacts will be not significant.

In order to minimize impacts on habitats, flora and fauna, and particularly on species of conservation interest, a **Biodiversity Action Plan** (refer to Section 9) will be adopted together with proper restoration of the working strip as described previously.
10.3.2 Findings regarding the Socioeconomic Environment

In general, the TAP Project will cause some temporary and localised socioeconomic impacts. The majority of these are rated as minor significance, with a few rated as moderate and one rated as major (i.e. noise emissions from precommissioning), plus some of these being positive impacts (i.e. procurement during construction benefitting the local economy).

Precommissioning activities during construction will produce significant, temporary noise impacts in proximity of the nearest sensitive receptors. However, as noted previously, TAP AG is committed to mitigating the residual noise impact to an acceptable level with a range of solutions currently being considered.

During construction, direct impacts on agricultural activity will occur mostly due to land clearing and land use restrictions; almost 1,900 olive trees with a trunk greater than 30 cm diameter and more than 130 landowners will potentially be affected. Although construction activities do not interfere with any tree included in the regional list of ‘monumental olive trees’), there are olive trees of significant age and size along the working strip. TAP AG has committed to restoring the condition of the land to the pre-construction status through the reinstatement of the olive groves. Upon request of the landowner, and in agreement with the relevant authorities, alternative compensation measures could apply. All the dry stone walls that will be dismantled during the construction phase will be rebuilt during the reinstatement activities, in compliance with their original sizes. With regard to any other structures with landscape value, the interference with construction activities and the possible need of reinstatement measures will be evaluated and considered on a case by case basis in agreement with the relevant authorities / landowners.

Construction activities near the coastline will be suspended during the summer period in order to avoid interference with tourism related activities (i.e. to minimise the potential loss of visitors and revenue). Additionally, microtunneling technology will be used to construct the landfall, minimising impacts on the coastal area.

The general principles of fair compensation to all Project affected people will be detailed in a Livelihood Restoration Framework (LRF) that will be implemented through a Livelihood Restoration Plan (LRP). These documents will be made publicly available, in their entirety or as a summary, to ensure a transparent and open process. In addition, each individual landowner will be contacted in the Land and Easement Acquisition (LEA) process and open, fair and transparent negotiations will be carried out to ensure that the principle "Nobody Loses Out" is adhered to.
10.3.3 Findings regarding Cultural Heritage

Although no visible evidence of marine archaeological resources has been identified along the proposed offshore pipeline route in the Adriatic Sea, the area does have relatively high potential for finds. Therefore a detailed seabed investigation has been undertaken by TAP AG to provide a preventive submarine archaeological risk assessment (as required by Decree n. 163/2006 art. 95 and 96) and specific measures will be implemented through a Cultural Heritage Management Plan to manage any chance finds.

The most significant impacts on any onshore cultural heritage resource will be caused by ground-disturbance activities and the physical presence of the pipeline working strip and other work sites during construction. During operation the visual impact of permanent above ground installations (i.e. the PRT) can affect the setting or ambience of cultural heritage sites and therefore their value to visitors. However, all the available evidence suggests that there are no significant areas of archaeological risk within the onshore Project footprint.

A Cultural Heritage Management Plan will detail measures that will be implemented during the construction of the Project to mitigate any risks (i.e. known site avoidance, site area marking, Chance Finds Procedure, enforcement of guidelines in the workers' Code of Conduct). These management measures will be developed in consultation with the Ministry of Cultural Heritage, and in accordance with Italian law and international standards for the preservation of cultural heritage.

10.3.4 Findings related to Neighbouring Countries

Trans-boundary impacts between Italy and Albania could potentially occur during the construction phase, mainly due to precommissioning activities and marine vessel traffic.

After construction of the offshore pipeline is complete it will be filled with sea water from the Italian side for hydrotesting. The water will then be discharged on the Albanian side. It is expected that the discharged water will only contain small amounts of products washed from the pipeline, causing some discolouration at the point of discharge. However, this impact is considered to be of minor significance.

Trans-boundary vessel traffic and its associated effects are expected to be generated in Italian territory during the construction phase of the Albanian section of the TAP, since the installation of the offshore pipeline on the Albanian side of the Adriatic will be serviced from an Italian port (possibly Brindisi). Although vessel movements will increase during the construction period this impact is, however, considered to be of minor significance.

TAP AG will discuss any trans-boundary impacts with the Italian, Albanian and Greek Ministries of Environment. Notification Forms have been submitted in line with the Espoo Convention to the Ministry of Environment of each of the three countries.

Moreover, it should be noted that the Albanian ESIA was approved on third of April 2013.
10.4 Implementation of Project Mitigation and Enhancement Measures

Following the Performance Requirements of EBRD and international best practice, TAP AG is committed to avoid, mitigate or offset adverse impacts and to minimize and manage negative impacts on the environment, the population and cultural heritage through a number of defined mitigation measures. Mitigation has already been implemented during the design stage through route and site selection and the choice of technical solutions. Furthermore, a single commitment register will contain all Project commitments made by TAP AG throughout the ESIA process.

A detailed Environmental and Social Management and Monitoring Plan (ESMMP) reflecting the above will be fully integrated into an Environmental and Social Management System (ESMS) which is designed to ensure that all mitigation measures and commitments made by TAP AG in the ESIA as well as in other relevant documents will be implemented in practice both by TAP AG themselves and the Contractors working on behalf of TAP AG. This system will be developed after the finalization of the ESIA and well in advance of any key contracts for construction being awarded. TAP AG will disclose the draft ESMMP on its webpage, invite for comments, organize a feedback workshop and finalise the ESMMP based on these comments before disclosing it at similar places etc. as the Final ESIA.

Measures to manage any impact on the livelihoods of individuals affected by the Project will be further detailed in the Livelihood Restoration Plan (LRP) and implemented through the ESMMP. All these documents should be seen as part of the continuing ESIA process, which ensures that TAP AG's principles are carried out in practice.

10.5 Non Regular Operation and Unforeseen Events

All plant, pipe sections and equipment supplied to the TAP Project will be designed, manufactured, delivered, installed and operated in accordance with the relevant European, national and international codes, standards and regulations.

For instance, safety measures will therefore be inherent to the mechanical and process equipment installed and operated at the PRT facility, such as a corrosion protection system and a regular program of inspection and maintenance. Safety measures will also be implemented through the prevention of leaks, fires and explosions. Regarding this point in particular, the procedure relevant to the technical evaluation of the Project has already been agreed with the local fire brigade (as requested by DPR 151/2011).

Safety measures for the offshore pipeline will be integral to its maintenance, for instance, through the corrosion protection and preventing damage from third party interactions (fishing, marine traffic, etc.). Moreover, a regular program of inspection is foreseen to check the integrity of the offshore pipeline.
Inspection and maintenance activities for the pipeline and associated facilities will ensure safe gas transportation over the planned lifetime of the system, without interruptions. The system depends on the reliability of the individual components therefore it is necessary to monitor its condition, to execute planned maintenance and to resolve incidents and failures that could reasonably be anticipated to occur.

During the construction period, several working practices / procedures will be applied. These procedures will be included in the Site HSE Plan that represents the principal document for provide a description on how TAP intends to provide the Health, Safety and Environment strategy during the construction phase.

The HSE Plan will also include the *Emergency Response Plan (ERP)* detailing measures to limit the consequences in the unlikely event of an accident.

Overall, the risk of an accidental event during operation is very low due to the technical design and management of the pipeline system. The installed pipeline protection systems together with regular inspection and maintenance will furthermore minimise the risk during operation.
10.6 Final ESIA Statement

In consideration of the above, it is stated that this ESIA of the TAP Project in Italy:

- Was conducted in line with the relevant Italian and European legislation as set out in Section 3;
- Has been undertaken in accordance with EBRD Performance Requirements and TAP AG’s Environmental and Social Policy;
- Has been performed according to high technical and scientific standards applied in Projects of international interest;
- Has comprehensively assessed the environmental and social impacts (positive and negative) predicted for the Project;
- Respects and embodies stakeholder views and concerns associated with the Project;
- Will offer, together with its associated documents (i.e. the ESMMP), an integrated framework to manage, mitigate, restore and monitor any adverse environmental and social impact caused by the construction and operation of the Project; and
- Offers an integrated framework to manage and enhance any positive environmental and social effects of the proposed Project.

The ESIA content presented in this report is considered as material adequate for public, national and international acceptance, and therefore, is deemed in accordance with the provisions of the Italian EIA legislation (Decree 152/2006 - Decreto Legislativo ‘Norme in materia ambientale’ and amendments).