ESIA Italy
Section 5 ESIA Approach and Methodology
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5 ESIA APPROACH AND METHODOLOGY

5.1 Introduction and Overview of the ESIA Process

An Environmental and Social Impact Assessment (ESIA) is the systematic process of identifying and assessing the potential effects on the biophysical, socioeconomic and cultural heritage environment as a consequence of a project or its development. As a planning tool, the ESIA aims to ensure that environmental, social and cultural heritage issues throughout the entire project lifecycle are anticipated and considered for the TAP Project (for details on the project, see Section 4). It also serves as a framework for establishing project controls to reduce or prevent adverse environmental or social impacts.

This section summarises the key stages for the ESIA process undertaken by TAP AG in Italy. As such, it presents the approach that has been adopted for the execution of this ESIA and defines the methodology that has been used for the collection of data and the assessment of impacts.

5.1.1 ESIA Requirements

The integration of environmental and social considerations into the project cycle is an essential part of all projects that aim to contribute to sustainable development. ESIA is internationally accepted as being the most effective way of achieving this integration in a process that is efficient in terms of project design, development and implementation that also meets the requirements of regulators, possible project financing institutions, civil society and project affected communities, i.e. the stakeholders.

Whilst within the Italian regulatory framework only Environmental Impact Assessment (EIA) is mandatory, TAP AG has also decided to take into account the social implications of the Project as per international best practice. Through the Environmental and Social Impact Assessment (ESIA) process, TAP AG identifies, addresses, and manages all social, environmental and cultural heritage impacts, risks and opportunities in a systematic and comprehensive manner.

TAP AG has selected the Performance Requirements (PR) of the European Bank for Reconstruction and Development (EBRD) to serve as the benchmark to assure that adverse impacts on people, their rights, livelihoods, culture and environment is avoided or, where avoidance is not possible, minimised, mitigated, offset and/or compensated. This approach also provides for conformance with European Union (EU) Directives and further with the requirements of the Performance Standards (PS) of the International Finance Corporation (IFC).

In 2008, EBRD published its Environmental and Social Policy. The objectives of the policy inter alia are to achieve that projects:

- Are socially and environmentally sustainable;
- Respect the rights of affected workers and communities; and
- Are designed and operated in compliance with applicable regulatory requirements and good international practice.
The policy relates to a series of Performance Requirements and it is these requirements, which were used to guide the scope and content of this ESIA.

In line with the EBRD requirements, a Project must be compliant with national and local regulations of Italy. This is being ensured via TAP AG’s overall programme of assessment and permitting work.

The EBRD’s Performance Requirements (PR) cover the following areas:

- PR1: Environmental and Social Appraisal and Management;
- PR2: Labour and Working Conditions;
- PR3: Pollution Prevention and Abatement;
- PR4: Community Health, Safety and Security;
- PR5: Land Acquisition, Involuntary Resettlement and Economic Displacement;
- PR6: Biodiversity Conservation and Sustainable Management of Living, Natural Resources;
- PR7: Indigenous Peoples;
- PR8: Cultural Heritage;
- PR9: Financial Intermediaries; and
- PR10: Information Disclosure and Stakeholder Engagement.

Taking the precautionary approach, for the purpose of the ESIA process, the TAP Project is being treated as a Category A project concerning the categorisation of the EBRD Environmental and Social Policy. This categorisation means that the Project will undergo a comprehensive environmental and social impact assessment process and relevant actions and measures to safeguard the environment including the social sphere will be set out in a Project Environmental and Social Action Plan (ESAP).

TAP AG is committed to fulfil the above principles and the requirements of the PRs and has set this out in a policy document on ESIA for the project.2

The framework for Italian and international policy, legislation and standards within which the ESIA was undertaken is described in detail in Section 3.

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1 A proposed project is classified as Category A when it could result in potentially significant and diverse adverse future environmental and/or social impacts and issues which, at the time of categorisation, cannot readily be identified or assessed and which require a formalised and participatory assessment process carried out by independent third party specialists in accordance with the PR (cf. para. 20 EBRD Environmental Policy 2008); Further, Appendix 1 EBRD Environmental Policy provides an indication of Category A projects. This includes under para. 8. “Pipelines, terminals and associated facilities for the large-scale transport of gas, oil and chemicals”.

5.1.2 Legislation and Standards

Pertinent Italian, EU and international legislation and standards for the protection of the environment and people were reviewed during the development of significance criteria for the ESIA. Many legislative instruments set out standards of environmental performance and expectations for surrounding environmental quality that are pertinent to the Project. Where this is the case, they have been used to develop impact significance criteria so that, for example, any predicted breach of a law would be regarded as an impact of major significance that the Project would need to take action to avoid or mitigate to a legally acceptable level.

For some environmental and social aspects, the requirements contained within Italian Law and international standards are expressed in qualitative terms and rely upon professional judgement for evaluating significance. In these cases, a review of published guidance, expert opinion and input from stakeholder consultation during the scoping phase, has been used to develop appropriate impact significance criteria.

The basis of the significance criteria applied to topic specific technical assessments is referenced in Annex 6.

5.1.3 ESIA Approach

The approach adopted in this ESIA is following international best practice as per EBRD standards and at the same time fulfils Italian EIA requirements. This ESIA therefore follows a systematic process that predicts and evaluates the impacts the proposed Project is expected to have on aspects of the physical, biological, and socioeconomic environment. The ESIA also identifies measures that the Project will take in all phases (from planning to decommissioning) to avoid, reduce, remedy, offset or compensate for adverse impacts and to provide benefits, as far as is technically and financially feasible.

The overall approach that has been followed for the ESIA is shown schematically in Figure 5-1 (Section 5.3.5.2).

Figure 5-1 shows that the ESIA to date also proceeded in parallel, and interacted, with the other processes of stakeholder consultation and project decision-making and design, with baseline information being collected and feeding into the process as required. Accordingly, issues identified in the ESIA process, were revisited and measures were modified to improve project outcomes.

The TAP ESIA process and its component parts are described in the following sections and Annex 6 provides further details of the methodologies and significance criteria adopted for specific ESIA topics.
5.2 Stakeholder Engagement

As part of the ESIA process, stakeholder engagement was undertaken to comply with the Italian EIA requirements and the EBRD PR10 on ‘Information Disclosure and Stakeholder Engagement’. PR10 sets out the requirements for project proponents:

“...to identify stakeholders potentially affected by their projects, disclose sufficient information about issues and impacts arising from the projects and consult with stakeholders in a meaningful and culturally appropriate manner”.

Accordingly, TAP AG has set out a corporate social responsibility and stakeholder engagement strategy and prepared a stakeholder engagement plan (SEP) to reflect Project’s engagement with international, national, regional and local stakeholders, as well as to provide a systematic framework to implement the corporate social responsibility and stakeholder engagement strategy. The main goals of the SEP are to ensure that:

- Adequate and timely information is provided to Project-affected people and other stakeholders;
- Stakeholders are given sufficient opportunity to voice their opinions and concerns; and
- Stakeholder feedback influences Project decisions.

TAP AG has informed and engaged with stakeholders via a variety of mechanisms. These have included a Scoping tour in municipalities affected by the project during July 2011 (see Section 7, Stakeholder Engagement and Project Response), the involvement of stakeholders in the development of the ESIA baseline, consultation with stakeholders on key issues of relevance to the Project and the ESIA, publication of the information about the Project, formal and informal meetings with stakeholders. The presentation of the ESIA followed national and international requirements.

Additional stakeholder engagement was undertaken between October and December 2011 and in February 2012. The objective of this phase was to complement the scoping engagement that was held in July 2011 in order to ensure that stakeholders had an opportunity to learn about the Project, to ask questions and raise concerns. The engagement was also used to gain information that was of importance in the assessment of impacts and development of mitigation measures.

After the submission of the ESIA Report to the Ministry of Environment that occurred on 15 March 2012, a series of ESIA Disclosure activities were performed. Stakeholders expressed their views and concerns about the project and its environmental and social impacts. Some of the issues that were raised during the ESIA disclosure required TAP AG to review the project layout and design and to organise additional surveying activities. Therefore the implementation of the ESIA Disclosure Action Plan was put on hold in November 2012.

In November – December 2012 other stakeholder engagement activities were performed in connection to the need to perform geophysical and geotechnical surveys along the whole route to confirm the geological characteristics of the area and the feasibility of the Project.

In early 2013 TAP AG established a local office in Lecce intensifying direct engagement opportunities and reinforcing the leadership on the stakeholder engagement process. This change of strategy included, among others the following activities: increase of local stakeholder engagement and grievance officers, participation in open air markets to inform local communities about the Project, the establishment of a diversified communication strategy (individual letters, website, etc.) and consultation with specialized companies to conduct communication campaigns and opinion surveys.

Subsequent to the first ESIA submission on 15th March 2012, the ESIA has been updated to reflect of Scoping Advice from the Italian Ministry of Environment and Ministry of Cultural Heritage, comments received from stakeholders (both Italian Authorities and the general public) and project design changes that have occurred. Whilst in principle these amendments could have been addressed through the provision of an integration document, for ease of reference and clarity the decision was taken to provide an entirely revised ESIA document, thus replacing in its entirety the first ESIA submission. TAP AG is committed to disclose the outcome of the study to national, regional and local stakeholders.

Further information on the SEP implementation and statutory and public stakeholder consultation including a summary of the issues and concerns raised by stakeholders and how the project will respond will be provided to the Ministry of Environment during the EIA permitting procedure.

### 5.3 Scoping and ESIA Terms of Reference

#### 5.3.1 Scoping

TAP AG recognises that comprehensive planning and management of environmental and socio-economic issues are essential to the execution of any successful project and, therefore, intends to fully integrate environmental and socio-economic considerations into the life cycle of the proposed Project.

As an initial step of the ESIA process, TAP AG has undertaken project scoping to establish key issues for the project and to define the full scope of the ESIA. The Italy Scoping Report provided the following information:

- Scope and content of the ESIA to be undertaken;
- Introduction of the regulation and guidelines to be considered in the ESIA process;
- Description of the selected options (current at the time of submission, in May 2011);
- Brief description of the project to be assessed during in the ESIA;
- Terms of Reference for the ESIA;
• Stakeholder engagement process.

As per EU guidance on Scoping⁠¹, a key aim at an early stage of the ESIA is to identify the likely significant impacts of the Project that will require investigation and to develop the resulting terms of reference for the assessment studies. For this ESIA this involved the systematic consideration of the potential for interaction between activities involved in developing the Project and aspects of the physical, biological and socioeconomic environment that may be affected.

TAP AG applied for the Italian Scoping Procedure (voluntary procedure under art. 21 of D.Lgs 152/06 and further amendments) in May 2011.

The scoping documentation was disclosed to the Stakeholders (details are reported in Section 7) and published on TAP AG’s website.

Official Scoping Advise was issued by the Italian Ministry of Environment in November 2011 (Advice n. 790 of 4th November 2011, fully reported in Annex 1 of this ESIA).

The present ESIA has been developed considering the main comments of Stakeholders and the Scoping Advice of the Italian Ministry of Environment.

5.3.2 The Technical Scope

The Project is defined as including all those actions and activities that are a necessary part of the development including the main related and ancillary facilities without which the Project cannot proceed.

The definition of the Project excludes activities which are prompted to occur by the Project but which are not essential to its development and are undertaken by others. However, the impacts of such activities will nevertheless be taken into account in the assessment.

5.3.3 The Spatial Scope

The ESIA clearly sets out what is variously referred to as the ‘spatial scope’, ‘study area’ or ‘area of influence’ for the Project and its ESIA. EBRD specifically defines areas of influence in the following terms that are reproduced below with comments on their application to the TAP Project ESIA.

¹ http://ec.europa.eu/environment/eia/eia-guidelines/g-scoping-full-text.pdf
Box 5-1  EBRD Definitions of Areas of Influence

(i) “The assets and facilities directly owned or managed by the client that relate to the project activities to be financed (such as production plant, power transmission corridors, pipelines, canals, ports, access roads and construction camps).” These will be assessed as a matter of course in the ESIA.

(ii) “Supporting/enabling activities, assets and facilities owned or under the control of parties contracted for the operation of the clients business or for the completion of the project (such as contractors).” At this stage of the Project development such matters are still to be resolved. However the ESAP will clearly set out the management measures that TAP AG will take in regard to such matters as contractor management and procurement of goods and services.

(iii) “Associated facilities or businesses that are not funded by the EBRD as part of the project and may be separate legal entities yet whose viability and existence depend exclusively on the project and whose goods and services are essential for the successful operation of the project.” The position at this stage is that any facility that is essential for the successful operation of the Project is part of the Project and therefore will be subject to lender requirements. Therefore at this stage these matters are not believed to be pertinent to the Project.

(iv) “Facilities, operations, and services owned or managed by the client which are part of the security package committed to the EBRD as collateral.” Such matters are yet to be determined but are not anticipated to have an influence on the spatial scope of the ESIA.

(v) “Areas and communities potentially impacted by: cumulative impacts from further planned development of the project or other sources of similar impacts in the geographical area, any existing project or condition, and other project-related developments that can realistically be expected at the time due diligence is undertaken.” These will be assessed as a matter of course in the ESIA.

(vi) “Areas and communities potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location. The area of influence does not include potential impacts that would occur without the project or independently of the project.” These will be assessed as a matter of course in the ESIA.

It should be noted that ultimately if TAP AG decide to go for financing through the EBRD, the EBRD and TAP AG will agree on the area of influence for the Project and that EBRD will draw upon the ESIA findings in determining the boundaries within which its PRs will apply.

Impacts have been identified and their significance assessed throughout the area of influence of the Project and its component activities. The spatial scope therefore varies depending on the type of impact being considered and in some cases has been refined as the assessment has proceeded. In each case it includes all areas within which significant impacts are likely to occur and takes into account the following considerations:

- The physical extent of the proposed works, defined by the limits of land to be acquired or used (temporarily or permanently) by the Project.
• The nature of the baseline environment and manner in which impacts are likely to be propagated beyond the Project boundary.

For example, effects on archaeological features are typically confined to those areas physically disturbed by construction works, whilst the effects of noise or visual intrusion can be experienced at some distance and air pollution may be dispersed over long distances or even contribute to regional/global impacts.

The area of influence may also extend across administrative or national boundaries and the assessment has therefore considered such trans-boundary effects.

5.3.4 The Temporal Scope

Impacts have been identified and assessed for all phases of Project development from initial site preparation, including any advance works, through construction, commissioning and operation, to decommissioning, restoration and after use (to the extent these latter three items can be understood at this time).

Since the design lifetime of the Project is considered to be 50 years\(^1\), the assessment also considers the autonomous development of pertinent aspects of the baseline over this time and assesses the extent to which projected changes and trends influence impacts.

5.3.5 Terms of Reference

The ESIA has been developed according to the specific requirements set by the Italian Regulation on VIA (DPCM 27/12/1988 and D.Lgs. 152/2006 as modified by D. Lags 4/08 and D.Lgs. 128/10).

In addition, the ESIA would be prepared in line with the EBRD's Environmental and Social Policy (2008) including Performance Requirements (PR).

The following subsections present the key Terms of Reference of this ESIA Report: ESIA Objectives; ESIA Steps; and definition of Project Area and Areas of Influence.

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\(^1\) The TAP facilities (compressor stations, equipment) will be designed for a lifetime of 25 years, while the pipeline itself is designed for a technical lifetime of 50 years. Therefore, for the sake of the ESIA the design life of the project has been considered to be 50 years, although it should be noted that after 25 years the Compressor equipment would be replaced by BAT at that time.
5.3.5.1 ESIA Objectives

The purpose of the ESIA is:

- To identify the legal framework applicable to the project;
- To describe the principal project features and technical specifications;
- To summarise the approach used by TAP AG to design the pipeline and assessment of alternatives for the project;
- To describe the social, environmental and cultural heritage baseline of the project in terms of key sensitivities and potential constraints on the construction, operation and maintenance of the pipeline;
- To assess the potential impacts of the project and project-related activities on the environment (including biophysical, cultural heritage and socio-economic resources); and
- To design mitigation or enhancement measures to avoid, remove or reduce negative impacts to the environment.

5.3.5.2 ESIA Steps

The key steps in an ESIA process can be considered in terms of phases as described below.

- **Pre-study activities** such as screening, preliminary assessment and scoping. This phase establishes the environmental, social and cultural considerations in advance of detailed studies.

- **The ESIA study**, which results in the identification and assessment of impacts. Integral to this study is the development of measures to mitigate and reduce or remove adverse impacts.

- **The post-study stage**, which includes steps undertaken for review and monitoring to ensure that mitigation measures are implemented, and that they are effective during construction and operations.

In summary, the ESIA follows a systematic and iterative process of examining the environmental, socio-economic and regulatory context within which the project is situated. Figure 5-1 graphically presents the ESIA process.
5.3.5.3 Project Area – Definition Related to the Project

As described in Section 2, the route of the TAP Project in Italy has been selected following an extensive and thorough alternatives route assessment process performed by TAP AG with the aim to select a technically feasible pipeline route with the least environmental, socioeconomic and cultural heritage impacts.

Upon the selection of the preferred route (or ‘base case’) a process of route refinement commenced with the aim to optimise the route.
The TAP Project area includes the footprint of all project activities, where work is directly going to be performed. This includes the footprint of the pipeline (working strip which has a width of approximately 26 m and includes room for pipeline fabrication and for simultaneous vehicle movements), access roads, Pipeline Receiving Terminal (footprint of approximately 16 ha), laydown areas, work sites and other associated facilities.

5.3.5.4 Areas of Influence – Definitions Relating to the Natural, Social and Cultural Environment of the Project

For the purpose of this ESIA, the area of influence for the TAP Project activities has been defined as the area in which a direct or indirect impact on the physical, biological, social or cultural environment might occur. For the detailed analysis of the current baseline of the project, the following areas of influence have been defined:

- For environmental impacts, the area of influence is defined as a 2 km corridor along the proposed pipeline centre line (1 km wide either side) and 1 km from the boundary of proposed work sites, BVS, PRT. This area is considered sufficient to encompass the area physically affected by project activities and most off site environmental impacts (e.g. noise and air quality impacts).

- For socioeconomic impacts, the direct area of influence is defined as a 2 km corridor along the proposed pipeline centre line (1 km wide either side) and 3 km from the PRT boundary. Settlements within this area will be most significantly affected by direct impacts area such as land use, disruption to infrastructure and reduced environmental quality.

- For cultural heritage impacts, the area of influence is defined as a 50 m corridor along the proposed pipeline centre line to accommodate for physical disturbance impacts created by the 26 m working width. The area of influence for the work sites, BVS and PRT will similarly be delineated by their physical footprint.

- Major populated areas outside the 2 km corridor may be directly or indirectly affected by project activities (e.g. network of supplies, infrastructure and transport system, employment base, services, etc.).

5.4 Baseline Study Methodology

A wide range of methodologies were adopted for the baseline studies for the TAP Project. This section aims to provide a summary of all methodologies utilised for each of the environmental, social, and cultural disciplines as well as providing criteria from which the current quality and importance of features can be evaluated.

Limitations have also been listed where appropriate. As the methods for certain analysis (e.g. water samples) can be particularly technical Annex 6, ESIA Baseline and Impact Assessment Methodology, and Annex 7, Baseline Data and Maps, should be read in conjunction with this chapter for further details. Furthermore, mapping providing sample points and the survey area is also provided in Annex 7.
A good understanding of the baseline is the key factor to comprehend the nature and importance of project impacts and in feeding back to project design and routing / siting decisions. Data were collected and described in detail in Section 6 - Environmental, Social and Cultural Baseline.

Baseline information was collected during the different stages of route development and in particular for the finally selected route.

5.4.1 GIS, Mapping and Indicators

Information collected during the field survey, together with the result of an intensive desktop analysis based on high resolution satellite imagery and official sources (official GIS data and thematic maps), was integrated into a geographic database developed according with the most recent standards and accepted formats (ESRI geodatabase, ESRI Grid and shapefiles). This project GIS (Geographic Information System) allowed for the findings of the different disciplines to be integrated and for maps and figures to be created showing different combinations of relevant data. All the information for each site of interest have been included, such as information on the relevance of the site, specific metadata (source, year etc.) and when available also associated photographs have been linked.

The use of a Geographical Information System (GIS) was important both in interpreting the data collected and in analysing and presenting relevant information on maps and charts of the study area.

The data collected should be viewed as a snapshot in time. In some areas there will be additional data collection to resolve uncertainties/gaps and to feed into future management plans in a later stage of the Project.

5.4.2 Specific Methodologies per Discipline

Specific methodologies have been used to develop the baseline data for the different disciplines. Detailed information on the methodologies used to obtain environmental, social, and cultural data is provided in Annex 6 of this Report.
5.5 Route Refinement

The route of the TAP Project in Italy has been selected following an extensive and thorough alternatives route assessment process performed by TAP AG with the aim to select a technically feasible pipeline route with the least environmental, socioeconomic and cultural heritage impacts.

Following international best practice, TAP AG conducted an alternatives assessment, supported by the Alternative Selection Process. The procedure of identification of optimal route and site was based on a first identification of macro – corridors, followed by progressive steps that lead to the identification of more restricted area in order to optimize the Project footprint (i.e. pipeline starting and ending points siting as well as the pipeline routing itself) by limiting the intersection of environmental, social and cultural constraints and reducing impacts. The technical, environmental, socioeconomic and cultural heritage baseline characterisation and appraisal of the alternatives was conducted through a combination of desktop studies and field surveys. Section 2 of this ESIA includes the description of the alternatives assessment conducted by TAP AG.

5.6 ESIA Considerations in Project Planning and Design

To date, a substantial amount of design work, including the evaluation of alternatives, has been undertaken by TAP AG to provide definition to the Project.

Development of the ESIA required coordination and interaction between the ESIA team and the Project design teams on matters that include the following:

- Evaluation of alternative technologies and working methods, for example using Best Available Technique (BAT) assessments, to demonstrate the application of the mitigation hierarchy so that impacts are either avoided or the residual impacts are reduced to as low as reasonably practicable and/or to a level that would be deemed acceptable.

- Identifying the mitigation measures already integrated into design.

- Quantifying employment, resources use, landtake, emissions, discharges and wastes to feed into the impact predictions.

- Interfacing with safety studies to understand and assess potential major hazards that may result in potential impacts to environment or community safety.

- Further consideration of alternative approaches to offset and compensate impacts.

- The development and agreement of further mitigation measures during the operation phase.

Interaction between the ESIA and design teams and TAP AG decision-makers also included structured workshops focused around mitigation assumed to be built into design and good construction practice, the need for additional mitigation and options for addressing some of the key issues for the Project.
Although this ESIA Report presents comprehensive information on the planned activities to be undertaken during the construction and operation of the TAP, as a process the ESIA will continue to influence the management of project design, implementation, commissioning and operation. A key element in achieving the Project’s environmental and social management obligations will be the on-going interaction between design, construction, commissioning and operating engineers, contractors and environmental and social specialists. A key vehicle for the management of this interaction is the suite of management plans, provisions and guidelines to be contained within the Project ESAP. The ESAP will be supplemented and amended by on-going stakeholder consultation, environmental and social studies and design review.

5.7 Impact Assessment Methodology

5.7.1 General Considerations

The assessment of impacts is an iterative process that considers four questions:

- Prediction - what will happen to the environment and people as a consequence of the potential impacts associated to the TAP Project?
- Evaluation - does this impact matter? How important or significant is it?
- Mitigation – if it is significant can anything be done about it?
- Residual Impact – is it still significant?

Where significant residual impacts remain further options for mitigation may be considered and impacts re-assessed until they are as low as is technically and financially feasible for the Project and would be deemed to be within acceptable levels.

Annex 6 contains information on the methodologies, and more specifically the significance criteria (and their derivation) applied for the following topic areas in the ESIA:

- Offshore Physical Environment;
- Offshore Biological Environment;
- Offshore Socio-Economic and Cultural Heritage;
- Onshore Physical Environment;
- Onshore Biological Environment;
- Onshore Socio-Economic and Cultural Heritage.
5.7.2 Impact Prediction

The ESIA describes what will happen by predicting the magnitude of impacts (and quantifying these to the extent practicable, which varies depending on the topic being assessed). The term ‘magnitude’ is used as shorthand to include and encompass all the dimensions of the predicted impact including:

- The nature of the change (what is affected and how);
- Its size, scale or intensity;
- Its geographical extent and distribution;
- Its duration, frequency, reversibility; and
- If relevant, the probability of the impact occurring as a result of accidental or unplanned events.

The assessment of the magnitude of impacts to human receptors, for example a household, community or wider social group, takes into account their likely response to the change and their ability to adapt to and manage the effects of the impact.

The prediction takes account of mitigation measures that are already an integral part of design. The prediction also takes into consideration any uncertainty about the occurrence or scale of the impact, expressed as ranges, confidence limits or likelihood.

An overall grading of the magnitude of impacts is provided taking into account all the relevant variables noted above to determine whether an impact is either not significant or, small, medium or large magnitude. This scale is defined differently according to the type of impact. For readily quantifiable impacts, such as noise, numerical values are used whereas for other topics (e.g. ecology) a more qualitative classification is necessary. The details of how magnitude has been predicted and described for each impact are presented in Annex 6.

5.7.3 Evaluating Significance

The next step in the assessment is to take the information on the magnitude of impacts, and explain what this means in terms of its importance to the natural, social and cultural society and the environment, so that decision makers (e.g. authorities) and stakeholders understand how much weight should be given to the particular issue in determining their view of the Project. This step is referred to as the ‘evaluation of significance’.

The criteria for significance evaluation for each environmental/social component are reported in Annex 6. If an impact is judged as significant, in isolation or in combination with other impacts, it is reported in the ESIA Impact assessment Sections so that it can be taken into account by others in making decisions on the Project.
This recognises that evaluation requires an exercise of judgement and that judgements may vary between parties involved in the process. The evaluation of impacts presented in the ESIA Report is based on the judgement of the ESIA team, informed by reference to legal standards, national and regional government policy, lenders’ requirements, current international good practice/standards and the views of stakeholders.

In order to maximise the transparency of the ESIA process, criteria for assessing the significance of impacts are defined for each issue and type of impact. Typically these criteria take into account whether the Project will:

- Cause legal or accepted environmental standards to be exceeded, e.g. air, water or soil quality, noise levels, or make a substantial contribution to the likelihood of exceedance;

- Adversely affect protected areas or features, or valuable resources, e.g. nature conservation areas, rare or protected species, protected landscapes, historic features, high quality agricultural land, important sources of water supply, other key ecosystem services; and

- Conflict with established government policy e.g. to reduce CO₂ emissions, recycle waste, regenerate deprived urban areas, protect human rights.

Where standards were not available or provide insufficient information on their own to allow grading of significance, significance has been evaluated taking into account the magnitude of the impact and the importance or quality (and in some instances, the sensitivity or vulnerability) of the affected resource or receptor. The quality or importance of a resource or receptor has been judged taking into account, for example, its local, regional, national or international designation, its importance to the local or wider community, its ecosystem function or its economic value.

For a household, community or wider social group, the assessment of significance takes into account stakeholder views as articulated in existing policy or plans or expressed directly as a result of Project related stakeholder engagement.

Magnitude and quality/importance or sensitivity have been looked at in combination to evaluate whether an impact is significant and if so its degree of significance. The principle is illustrated in Figure 5-2.
Impact assessment is designed to ensure that decisions on projects are made in full knowledge of their likely impacts on the environment and society. A vital step within the process is the identification of measures that will be taken by a project to mitigate its impacts.

In some instances, mitigation will be inherent in design and in others mitigation measures will need to be identified during the ESIA process. The on-going ESIA process has therefore involved identifying where significant impacts could occur and then working with the Project team to identify and develop technically and financially feasible and cost-effective means of mitigating those impacts to levels that are deemed acceptable. These measures have then been agreed with the Project team and integrated into the Project proposals and the ESAP as clear unambiguous commitments.

Where a significant impact is identified, the following hierarchy of options for mitigation was typically explored:

- **Avoid at source** – remove the source of the impact;
- **Abate at source** – reduce the source of the impact;
• **Attenuate** – reduce the impact between the source and the receptor;

• **Abate at the receptor** – reduce the impact at the receptor;

• **Remedy** – repair the damage caused by the impact after it has occurred; and

• **Compensate / Offset** – replace in kind or with a different resource of equal value.

Compensation/offset is typically seen as a last resort but may be required in terms of Local legislation (sometimes also independent of the significance of an impact). Compensation or offset does not, however, automatically make an impact ‘acceptable’ or excuse the need to consider other forms of mitigation as discussed in the hierarchy.

5.7.5 Assessing Residual Impacts

Following agreement on technically and financially feasible and cost-effective mitigation, the ESIA team has, where necessary, re-assessed the impacts taking into account the further mitigation commitments integrated into design and operation of the Project. This iterative process continued until an impact was deemed acceptable within the confines of what was regarded to be technically and financially feasible and cost-effective.

All residual significant impacts are described in the ESIA Report in terms of their overall significance. Where an impact is of more than minor significance the ESIA explains in greater detail how the mitigation hierarchy has been applied (and where appropriate the other mitigation options considered in the assessment and the reasons for their rejection) to reduce an impact to a level that is deemed to be acceptable.

The degree of significance attributed to residual impacts is related to the weight the ESIA team considers should be given to them in making decisions on the Project and developing conditions.

**Box 5-2 Significance of Residual Impacts**

Any residual **major impacts**, whether positive or negative, are considered to warrant substantial weight, when compared with other environmental, social or economic costs and benefits, for those making decisions on the Project; conditions will be expected to be imposed to ensure adverse impacts are strictly controlled and monitored and beneficial impacts are fully delivered.

Residual **moderate impacts** are considered to be of lesser importance to making decisions, but still warranting careful attention to conditions regarding mitigation and monitoring, to ensure best available techniques are used to keep adverse impacts within levels deemed to be acceptable and to ensure beneficial impacts are delivered.

**Minor impacts** are brought to the attention of decision-makers but are identified as warranting little if any weight in the decision; mitigation will be achieved using normal good practice and monitoring will be expected to be carried out to confirm that impacts do not exceed predicted levels.
5.7.6 Cumulative Impacts

Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular time. Thus the cumulative impacts of an action or activity can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities affecting that resource (US EPA, 1999).

In the context of the TAP Project, cumulative impacts in the project area can potentially occur from the combined effects of the TAP Project with other presently on-going or reasonably foreseeable future activities in the project area.

The assessment of cumulative impacts will be performed, in general terms, in a qualitative manner based on the existing information of the present or future activities taken into consideration and the judgment of the ESIA team.

5.7.7 Trans boundary Impacts

The term trans-boundary impact refers to an impact, which occurs across political boundaries, be it because of the movement of an impacting item (such as waste) across said boundaries; or because of a medium, which in itself is of a trans-boundary nature, being impacted on (such as atmospheric emissions).

In the context of the TAP Project, which is planned to pass from the Republic of Albania through the Adriatic Sea, trans-boundary impacts should be taken into consideration. The key aspects to be considered when analysing the Project’s potential trans-boundary impacts are related to impacts on water resources; impacts on biological resources (primarily migratory bird populations); social aspects and climate change.

The methodology used to evaluate the potential significant of trans-boundary impacts will be the same as that used for all types of impacts.

5.7.8 Management and Monitoring

A wide range of different measures to mitigate impacts have been identified in the ESIA Report and the Project is committed to their implementation. These measures are set out in the Project Description and other chapters of the report and, to assist the reader, they have been brought together in an Impact summary table. In addition an ESAP for the Project will be prepared which describes how the mitigation commitments will actually be delivered, together with the role of monitoring, inspection, audit and reporting. The ESAP will be in line with EBRD’s Performance Requirements. Where necessary, additional details in the form of outline topic-specific plans (e.g. for waste management) will be provided for issues of critical importance.
5.8 Dealing with Uncertainty and Difficulties Faced in Undertaking the ESIA

5.8.1 General Considerations

Like most ESIs, the TAP ESIA faced a number of challenges in terms of the accuracy of predicting impacts, and developing appropriate mitigation. Furthermore, even with a firm Project design and an unchanging environment, predictions are by definition uncertain.

In order to facilitate decision-making, areas of uncertainty, data gaps and deficiencies, and additional work required during further stages of Project development have been highlighted within the ESIA report and mainly stem from the issues discussed below.

5.8.2 Accuracy, Depth of Detail and Gaps in Knowledge of the Existing Conditions

Although a good deal of information was available for the Italian territory, and in particular for the Puglia Region, various physical, geophysical, biological and archaeological surveys were carried out in the study area; the field surveys were performed by established scientists with a detailed knowledge of Italy (and in particular of the Puglia Region). There has also been substantial data gathering on socioeconomic conditions in the area. The surveys and data gathering were planned in such a manner so as to satisfy any specific local information needs. All surveys complied with Italian standards for baseline data collection and relevant scientific protocols, but were also designed and undertaken with supporting an international ESIA in mind. The information gathering was not limited to the surveys, but also researched the extensive body of information available in the scientific literature, grey literature and NGO and government documents.

Despite the extensive effort put into baseline data collection, it is unavoidable that some gaps in knowledge remain. In such cases, use has been made of information on similar environments or expert judgment, together with the application of a conservative approach to evaluating impact significance where appropriate.

The extent to which such uncertainty influenced the impact assessment is addressed in the relevant sections of the ESIA Report.
5.8.3 Developing Design

While ESIA is generally a process that interacts with design, it relies on design for certain data to provide the basis for impact assessment. In this respect it ideally has also to follow design, as well as interface with it. In a project of the scale and complexity of the TAP there were inevitably issues that have yet to be fully resolved in terms of the precise nature of project activities. The majority of these are construction related.

Uncertainty has therefore arisen as a result of the stage that has been reached in the design process at the time of preparation of the ESIA Report. Where the stage in design process results in uncertainty that is material to the findings of the ESIA, this is clearly stated and in some instances more than one option has been assessed. The general approach has been to take a conservative view of the likely residual impacts, to identify standards of performance that the Project will meet where firm predictions cannot be made, and to propose monitoring and further contingency measures.

5.8.4 Accuracy of Impact Prediction and Effectiveness of Mitigation

The accuracy of impact prediction is affected by both the issues discussed above, together with the prediction technique used. This is in part because ESIA predictions are made using methods ranging from qualitative assessment and expert judgement to quantitative modelling. The accuracy of predictions depended on the assessment method and the quality of the input data on the Project and its environmental and social context. Where assumptions have been made, the natures of any uncertainties that stem from these have been presented in the topic specific sections of the ESIA Report. In all instances, the significance criteria have been applied conservatively to ensure that the effectiveness of mitigation is not overestimated.

5.8.5 Managing Uncertainty

Managing residual uncertainty is a key role of the ESAP and the overall management approach. Impacts will be monitored, as will the effectiveness of mitigation. Where residual impacts are found to be unacceptably high and/or mitigation fails to achieve its objectives, corrective actions will be implemented.