

## Chapter 14 Overall Project Assessment





## ***TABLE OF CONTENTS***

14	OVERALL PROJECT ASSESSMENT .....	14-1
14.1	Introduction .....	14-1
14.2	Development of the ESIA.....	14-1
14.2.1	Adopted Process .....	14-1
14.2.2	Challenges Faced by ESIA Process.....	14-2
14.3	Issues Arising from Environmental and Social Assessment.....	14-2
14.3.1	Identified Issues .....	14-2
14.3.2	Secondary and Indirect Impacts .....	14-4
14.3.3	In Combination Impacts.....	14-5
14.3.4	Unplanned events .....	14-5
14.3.5	Issues Requiring Finalisation .....	14-5
14.3.6	Other Key Issues of the ESIA.....	14-6
14.4	Project Assessment Statement.....	14-8

### ***Tables***

Table 14-1:	Summary of Key Residual Impacts – Construction .....	14-2
Table 14-2:	Summary of Key Residual Impacts – Operation.....	14-4
Table 14-3:	Summary of Key Secondary/Indirect Impacts .....	14-4

SCP Expansion Project, Georgia  
Environmental and Social Impact Assessment  
Final

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## **14 OVERALL PROJECT ASSESSMENT**

### **14.1 Introduction**

The SCPX Project represents the results of years of feasibility studies and detailed assessment of a number of alternative technical options to ascertain the preferred arrangement. These studies have included identification of environmental and social constraints and concerns along the route and at the Facilities to assess pipeline routing and Facility site options and to obtain relevant baseline data for pipeline design, construction and operation.

### **14.2 Development of the ESIA**

#### **14.2.1 Adopted Process**

An environmental and social impact assessment (ESIA) in line with current international practice has been undertaken for the Georgian section of the SCPX Project. The aim of the ESIA process has been to ensure that all potential impacts on the environmental, social and cultural heritage that are attributable to the Project are fully investigated, reported and, where necessary, managed.

This ESIA has been undertaken and reported as an independent and objective process. In this regard, RSK has worked closely with Dzvelka and ACT, two specialist Georgian consultancies, together with cultural heritage, health and resettlement experts of international repute. One other ESIA is being undertaken which assesses impacts attributable to the Azerbaijan section of the pipeline.

In line with the relevant provisions of the host government agreement (HGA), the approach adopted in this ESIA is in accordance with EC Directive requirements (85/337/EEC, as amended by EC Directive 97/11/EC).

A feature of the process undertaken for this ESIA has been the extent to which it has been underpinned by stakeholder engagement and public consultation. The focus of consultation has been to understand as far as possible how the Project will impact all stakeholders, and to obtain their ideas and opinions on management of impacts in order to influence Project design, implementation and follow-up. In this regard, a Public Consultation and Disclosure Plan (PCDP) has established the framework for a structured and accountable programme of ongoing public engagement and participation that commenced in 2010 and which is anticipated to continue throughout future Project development and implementation.

The ESIA team has had the opportunity to work closely with the Detailed Engineering Design Team (CB&I) and with BP on behalf of SCP Co. (UK and Georgian representatives) with the common objective of fully assessing potential impacts and building mitigation into the Project's design.

The construction phase mitigation measures and procedures that have been developed as part of this ESIA have been transcribed by the Project into an Environmental and Social Management and Monitoring Plan (ESMMP), which will be included as contractual requirements in the terms of reference issued to bidders for the various construction contracts for the Project. Other mitigations have been incorporated as an integral part of the Project design. Operational commitments have been included in this ESIA and the new operational commitments will be carried forward into operational management plans.

A Commitments Register (Appendix E) has been compiled which provides a definitive list of the design, construction, operational and decommissioning phase commitments (mitigation measures) identified as a result of the ESIA process.

### **14.2.2 Challenges Faced by ESIA Process**

In common with most environmental and social assessments, the ESIA for the Georgian section of the SCPX Project has faced challenges in a number of areas in terms of the reliability of predicting impacts and in development of appropriate mitigation. These generally centre on the following factors:

- Uncertainty due to gaps in knowledge of the baseline. Where these difficulties have materialised, desk data has had to be relied upon as an interim measure and the ESIA as a result has identified locations where pre-construction surveys and further data acquisition will be required
- Evolving detailed design. While an ESIA is generally a process that parallels and interacts with design, it relies on design for certain data to facilitate identification of potential impacts. In a project of the scale and complexity of the proposed SCPX Project there are inevitably some outstanding issues that remain to be resolved in terms of the precise nature of Project activities. The majority, if not all, of these are construction related and are, by implication, short-term in most instances. These are discussed further below
- The ESIA provides a level of assurance with regard to these impacts in terms of generic mitigation measures and professional judgement on the extent to which they can be mitigated. The measures are described in detail in the ESMMP which is an integral part of the ESIA report
- Reliability of impact prediction and effectiveness of mitigation. In recognition of the level of current uncertainty inherent in the findings, the ESIA has stressed the importance of the ESMMP as a vehicle for delivering appropriate and effective measures for managing, controlling and mitigating environmental and social impacts. In this regard, on the premise that the management plans will be rigorously implemented and enforced, the stated level of significance of identified impacts in this ESIA where uncertainty exists, has been conservative (i.e. significance may be over-stated).

## **14.3 Issues Arising from Environmental and Social Assessment**

### **14.3.1 Identified Issues**

The ESIA has methodically undergone a process of identification of all potential impacts and assessment of their significance against a structured set of criteria that have been specifically developed for this Project and which reflect current international practice. All residual impacts and benefits have been identified and summarised to assist decision makers in forming a view of the relative attributes of the Project. These residual impacts are summarised in Table 14-1 for the construction phase and Table 14-2 for the operation phase.

**Table 14-1: Summary of Key Residual Impacts – Construction**

<b>Higher Significance Residual Impacts</b>
<b>Community safety</b>
<ul style="list-style-type: none"> <li>• Communities will be exposed to an increased risk of injury because the volume of road traffic will increase and because the construction sites will have hazards such as deep excavations and trenches</li> </ul>
<b>Medium Significance Residual Impacts</b>
<b>Accidental spill</b>

<ul style="list-style-type: none"> <li>Spillage of oil, chemicals or hazardous waste would change the ability of affected soil to support vegetation and of affected surface water to support aquatic species. Contamination of groundwater could make the water drawn from affected wells unsuitable for its intended use</li> </ul>
<b>Water resources</b>
<ul style="list-style-type: none"> <li>Accidental damage of third-party irrigation channels and/or impeded flow of water in the channels could result in temporary loss or restriction of supply to other consumers</li> <li>Mud breakout from micro-tunnelling of horizontal directional drilling below the Mtkvari River would increase sediment in river thus affecting downstream users and aquatic ecology</li> </ul>
<b>Ecology</b>
<ul style="list-style-type: none"> <li>The riparian woodland ecosystem by the Algeti River will be disturbed and some protected smooth-leaved elm trees will be cut down</li> <li>Loss of wetland patches which have the potential to support corncrake breeding and feeding activities</li> <li>Some areas of meadowland supporting the marsh orchid will be lost</li> </ul>
<b>Air quality</b>
<ul style="list-style-type: none"> <li>Pipeline construction may cause dust mobilisation which could affect the residences at Krtsanisi village</li> </ul>
<b>Noise and vibration</b>
<ul style="list-style-type: none"> <li>Potential for noise during construction to cause disturbance at Krtsanisi village</li> </ul>
<b>Community health</b>
<ul style="list-style-type: none"> <li>The public may be exposed to potentially hazardous materials in the event of an accidental spill</li> <li>The public will have increased exposure to disease (e.g. sanitation and waste-related disease, non-communicable diseases and sexually transmitted infections)</li> <li>There is the potential for tension between security personnel and community members</li> <li>Delays in transfer of a patient to a medical facility due to Project restrictions to access could lead to a deterioration in patient conditions</li> </ul>
<b>Employment, skills and livelihoods</b>
<ul style="list-style-type: none"> <li>The Project is likely to cause resentment of inequalities between local people who are employed by the Project and those whose applications were unsuccessful and of inequalities in pay and conditions between local workers and foreign workers</li> <li>At stages of the Project, particularly on completion of construction, jobs will be lost due to retrenchment</li> <li>The Project may cause tensions resulting from cultural differences, anti-social behaviour of construction workforce, potential prostitution and attraction of 'hangers on' at camp sites</li> </ul>
<b>Infrastructure and services</b>
<ul style="list-style-type: none"> <li>Accidental damage of third-party infrastructure is likely that could result in temporary loss or restriction of supply to other consumers</li> <li>The volume of heavy loads may cause damage to roads particularly at CSG1, CSG2 and the PRMS</li> </ul>
<b>Traffic and transport</b>
<ul style="list-style-type: none"> <li>Significant increases in traffic are likely on the local road network around CSG2 and the PRMS</li> </ul>
<b>Beneficial Impacts</b>
<b>Land contamination clearance</b>
<ul style="list-style-type: none"> <li>Cleanup and disposal of fly-tipped waste to an appropriate licensed facility will reduce the risk of mobilising contaminants into the surrounding environment and also reduce the risk of injury or disease to community members and construction personnel</li> </ul>
<b>Cultural heritage</b>
<ul style="list-style-type: none"> <li>Increased understanding of local archaeology as a result of pre-construction evaluation and any subsequent excavations at KP52-54 and at the CSG2 location</li> <li>Increased understanding of local archaeology following excavation and recording of any sites found during construction (by implementation of the late finds protocol) will be beneficial</li> </ul>
<b>Demographics</b>
<ul style="list-style-type: none"> <li>Improving the availability of employment is likely to reduce out-migration and therefore potential local population declines</li> </ul>
<b>Employment, skills and livelihoods</b>

<ul style="list-style-type: none"> <li>• The Project will enhance skills among the local workforce</li> <li>• Improving the income from employment is likely to increase sales for local businesses and those involved full/part time in 'cottage' industries</li> </ul>
<b>Infrastructure and services</b>
<ul style="list-style-type: none"> <li>• The construction of the CSG2 access road will give local communities more efficient transport links</li> </ul>

The medium significance residual impacts from the operation phase of the Project are summarised in Table 14-2.

**Table 14-2: Summary of Key Residual Impacts – Operation**

<b>Medium Significance Residual Impacts</b>
<b>Landscape visual impact</b>
<ul style="list-style-type: none"> <li>• Even if landscape planting at CSG2 is reasonably successful, views of the facility from the village of Rekha will change particularly at night</li> </ul>
<b>Greenhouse gas emissions and ambient air quality</b>
<ul style="list-style-type: none"> <li>• During operation phase the emission of greenhouse gas. Compared to other pipeline benchmarks, the SCPX pipeline is a relatively carbon efficient system</li> <li>• The Project NO<sub>x</sub> emissions will cause an increase in ambient NO<sub>2</sub> concentration of approximately 22% of the relevant standard at the closest residence to CSG1. However, total NO<sub>2</sub> levels including existing background are still well within (&lt;50%) of the hourly and annual average ambient air quality standards.</li> </ul>
<b>Beneficial Residual Impacts</b>
<b>Employment, skills and livelihoods</b>
<ul style="list-style-type: none"> <li>• Small-scale to long-term employment will bring some social benefits</li> <li>• The revenues generated by the pipeline will be beneficial for the national economy</li> </ul>
<b>Infrastructure and services</b>
<ul style="list-style-type: none"> <li>• The construction of the CSG2 access road will give local communities more efficient transport links</li> </ul>

### 14.3.2 Secondary and Indirect Impacts

Secondary and indirect impact assessment has been an integral part of the ESIA process and the identification of impacts and mitigation measures that are described in Chapter 10. Where an impact has a primary and secondary impact, this has been included in the table above.

Two secondary impacts on community health have been assessed as having medium significance and nine beneficial secondary/indirect impacts have been identified, as shown in Table 14-3.

**Table 14-3: Summary of Key Secondary/Indirect Impacts**

<b>Medium Significance Secondary Impacts</b>
<b>Community health</b>
<ul style="list-style-type: none"> <li>• Dust generated from vehicles especially on unmade access roads may have adverse health impacts</li> <li>• The social determinants of health (SDH) will be affected</li> </ul>
<b>Beneficial Residual Secondary Impacts</b>



<b>Employment</b>
<ul style="list-style-type: none"> <li>• Reduced out-migration</li> <li>• Local population increases</li> <li>• Increase in jobs available and incomes, leading to enhanced circulation of money in local/PAC economies resulting in overall economic growth, albeit small-scale</li> <li>• Improving the income from employment is likely to enhance the circulation of money, resulting in small-scale economic growth in Project affected communities, enhanced economic growth in Kvemo Kartli and Samtskhe-Javakheti regions and consolidation of existing growth trends in the towns of Akhaltsikhe and Tsalka</li> <li>• Improving the income from employment is likely to improve the standard of living for local households with members who are employed by the Project</li> </ul>
<b>Provision of Goods and Services</b>
<ul style="list-style-type: none"> <li>• Reduced out-migration</li> <li>• Local population increases</li> </ul>

### **14.3.3 In Combination Impacts**

The significant in-combination impacts are expected to be seen mainly in the construction phase. The areas close to the ROW where these in-combination impacts have been identified as a potentially significant issue, where dwellings are in very close proximity to the ROW, is the village and dwellings at KP40. Those communities in close proximity to construction camps will also experience an increased number of vehicle movements on local roads during the construction phase of the Project. This effect may be somewhat ameliorated by the intent of the Project to upgrade local roads that are to be used as access routes to the pipeline ROW.

Landowners and tenants of affected landholdings may be subject to a combination of localised disruption to their current agricultural regimes.

Given the temporary nature of construction works, and the fact that works along the pipeline ROW will progress in a linear manner, any such effects are expected to be short term, the significance of which will vary depending on the timing, extent and nature of operations undertaken and the effectiveness of the mitigation employed.

During the operational phase, in-combination effects are likely to be of low significance.

### **14.3.4 Unplanned events**

Chapter 12 discussed the features of the Project's design that will reduce the likelihood of unplanned events occurring, and the operational controls, such as emergency response measures, that are proposed to limit the duration of an unplanned event or limit the area that it affects. The noise and community safety issue from an incident on the pipeline was assessed as having a high significance. However, the likelihood of this type of event occurring is considered to be extremely low and hence a medium level of residual risk. Other types of impact were assessed as having low residual risk.

### **14.3.5 Issues Requiring Finalisation**

The ESIA recognises that there are a number of activities, mainly construction related, which are not fully defined at this stage and which can only be resolved following selection of the various major construction contractors (see Table 5-1 in Appendix D ESMMP) and detailed development of their work plans. Specific commitments relating to these issues are provided in Appendix E, Commitments Register.

### *Waste disposal*

The quantities and types of waste that will be generated during construction and operation are subject to the construction methodology to be employed by the (yet to be selected) construction contractors and to ongoing detailed design and vendor selection for particular plant and machinery. The Project is committed to a waste management strategy that is based on minimisation of waste at source, identification of all waste arisings, maximising recycling and re-use, use only of licensed disposal sites with adequate capacity and inspection and audit to ensure compliance in line with Project specifications.

### *Sourcing of aggregates and other construction materials*

The Project will require a significant quantity of aggregates, which have been estimated as far as possible in this report. The focus will be to minimise the level of transport of such materials by sourcing aggregates and other raw materials locally along the route. In accordance with the commitments set out in Appendix E, the Project will only use licensed facilities with sufficient capacity. If new facilities are required to service Project needs, these will be subjected to the formal Georgian approvals process.

### *Mtkvari crossing method:*

Micro-tunnelling and horizontal directional drilling methods are under consideration for constructing the crossing under the Mtkvari River. The decision will be made following input from the selected contractor.

### *Temporary access roads*

Access roads to the pipeline construction camp, pipe storage yards and the ROW have yet to be fully defined, however Chapter 5 shows the expected routes, including used during the construction of the BTC and SCP pipelines, a significant proportion of which are expected to be used during the SCPX pipeline construction. The Project will aim to prioritise use of existing access roads, in particular those that were used for BTC and SCP construction. These may need improving and widening in places. New temporary access roads will only be constructed where considered necessary. Once finalised, the routes will be subject to environmental and social assessment and any additional requirements in order to comply with the formal Georgian approvals process.

### *Summary*

In recognition of the level of current uncertainty inherent in the findings, the ESIA has stressed the importance of the ESMMP as the mechanism for delivering appropriate and effective measures for managing, controlling and mitigating the environmental and social impacts associated with these aspects of the Project. While this uncertainty has not affected the robustness and integrity of the ESIA process, the potential for residual impacts remains pending the resolution of these issues. The implementation of the provisions of the ESMMP will be a key contractor management requirement and will be informed by performance monitoring and auditing.

## **14.3.6 Other Key Issues of the ESIA**

### *Protection of biodiversity*

Route and site selection has focused on avoidance of environmentally sensitive areas and in this regard it has been successful in minimising impact in these areas. For example, proposed protection measures include:

- Pre-clearance surveys by specialists prior to construction commencement of the presence of sensitive species (for example, surveys will be carried out at dusk/night in June/July to record details of bats at KP2–11 and the Algeti River crossing KP53)
- Narrowing of the working width (for example, at the Algeti River crossing (D5-054) to reduce the disturbance to sensitive habitat)

- The CSG2 access road route has been altered to avoid areas of known corncrake (*Crex crex*) habitat
- If *Testudo graeca* (spur-thighed tortoise) is found within the work site, individuals will be moved a safe distance (50m+) from the works by the Project. Any eggs or hatchlings will be placed in a box of sand and transferred by the Project ecologist to suitable nearby habitat where a nest will be created
- Adoption of detailed reinstatement measures defined in the Reinstatement Plan and Ecological Management Plan, which forms part of the ESMMP.

#### *Greenhouse gases (GHG)*

The estimated total of GHG emissions from the SCPX Project in Georgia in 2020 will represent 0.0016% total contribution to global emissions (estimated 36,854 million te/yr in 2020)<sup>1</sup>. While the contribution of these to global emissions will be small, the Project has nevertheless sought to minimise GHG emissions.

#### *Protection of groundwater and surface water resources*

The ESIA recognises the importance of protection of groundwater and surface water resources for the SCPX Pipeline. The focus of the assessment has included the following:

- Input to construction planning with regard to construction discharges, water abstraction sustainability (particularly in regard to hydrotesting and camp supply), water quality issues at crossings or on unconfined aquifers/recharge zones
- Input to design: for example, specialist studies to determine the appropriateness of licensed operational discharges and supply sustainability
- A risk-based corrective action approach to dealing with contamination
- Protection of surface water quality during the construction phase.

#### *Cumulative impacts*

The assessment of cumulative impacts in Chapter 11 has identified those areas where synergistic effects may arise from concurrent development. This applies particularly to:

- Oil and gas pipelines
- Industrial facilities
- Road and railway developments
- Other developments.

The Project will endeavour to engage the other developers concerned to work with them and the authorities towards minimisation of the cumulative impacts identified.

#### *Land acquisition and resettlement*

The Project has developed a land acquisition process that sets out the policies and principles to be applied in cases where Project construction and operation activities will impact on land, other fixed assets, and land-based and other livelihoods. This land acquisition process will form the basis of the Land Acquisition and Compensation Framework (LACF).

#### *Cultural heritage*

The route has been subjected to desk study, archaeological field survey and extensive consultation to identify all known and readily apparent cultural heritage features of importance. In the process, knowledge of cultural heritage issues along the route has been added to. In response to the findings of this work, the route alignment has sought to avoid these features. In the few areas where this has not been possible further investigations will be undertaken to minimise impacts as far as is practicable. However, the ESIA recognises

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<sup>1</sup> Source: <http://climate.dot.gov/ghg-inventories-forecasts/national/us-inventory-structure.html>

that during construction of pipelines there is some probability of encountering artefacts or features of cultural importance. In this regard, the Cultural Heritage Management Plan (CHMP), within the ESMMP, which forms part of this report, provides the framework for identifying chance finds and how work should then proceed.

#### *Employment opportunities*

A significant impact (considered highly likely) as a result of the Project is tension due to the limited number of employment opportunities. However, the Project has declared its commitment to working to manage this expectation through consistent and comprehensive communications by the community relations teams.

#### *Sustainable development*

It is a feature of buried pipeline projects that, in the main, they are associated with predictable impacts during the construction phase and, provided reinstatement is properly applied, their long-term impacts are restricted to aboveground installations such as compressor stations, valve stations and terminal facilities. Similarly, the direct benefits to affected settlements of such projects are mainly short-term employment during construction and significantly less extensive long-term employment during the operation phase. SCP Co. is committed to contributing to the longer-term sustainability of Project affected settlements via its ongoing Community Development Initiatives.

## **14.4 Project Assessment Statement**

The ESIA has systematically and comprehensively examined all identified aspects of the Project with the potential to give rise to environmental or social impacts.

There are a number of residual impacts relating to construction of the pipeline and operation of the aboveground facilities. However, by careful management (and in certain cases further studies to remove or reduce current uncertainty regarding their sensitivity) and the implementation of the various mitigation measures set out in this report, these residual impacts will be managed.

On a national scale the SCPX pipeline will bring significant benefits to Georgia. There are also a number of anticipated direct benefits for local settlements, particularly during the construction period, in terms of short- and (in fewer cases) long-term employment. Community development initiatives will also benefit certain impacted communities.