

Advisory Review on the Compliance of Project  
Implementation with the Environmental Permit for  
the Baku-Tbilisi-Ceyhan Oil Pipeline and the  
South Caucasus Gas Pipeline in Georgia

23 December 2004

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Utrecht, Netherlands Commission for  
Environmental Impact Assessment

Advisory Review on the Compliance of Project Implementation  
with the Environmental Permit for the Baku-Tbilisi-Ceyhan Oil  
Pipeline and the South Caucasus Gas Pipeline in Georgia

Advice submitted to the Netherlands Ministry of Housing, Spatial Planning  
and the Environment (VROM), by a working group of the Commission for  
Environmental Impact Assessment in the Netherlands.

Technical Secretary

Chairman



Mr. Arend Jan Kolhoff



Mr. Dick de Zeeuw

Utrecht, 23 December 2004





commission for environmental impact assessment

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your reference  
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your letter of  
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our reference  
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subject  
Advisory Review on the Compliance of  
Project Implementation with the  
Environmental Permit for the Baku-  
Tbilisi-Ceyhan Oil Pipeline and the South  
Caucasus Gas Pipeline in Georgia

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Utrecht,  
22 December 2004

Excellency,

At your request a working group of the Netherlands Commission for Environmental Impact Assessment (NCEIA) has been assigned to advise you on environmental compliance of the Baku-Tbilisi-Ceyhan oil pipeline project and the South Caucasus gas pipeline project, presently under construction by the BTC-consortium in Georgia. A delegation of the NCEIA visited Georgia from 10-17 November 2004.

I would like to ask your attention specifically for the following issues:

- The Government of Georgia and BP have agreed that the risk of oil spills in the Borjomi area should have a risk as close to zero as possible. A zero risk on oil spills is impossible. In the Borjomi area additional measures have been applied to reduce the risk of oil spills. However, there are two sites where there is still a significant risk of geo hazards that could have a significant impact on the integrity of the oil pipeline. The risks of oil spills should and can be further reduced by implementation of additional mitigating measures, specified in this advice and installation of an effective monitoring system.
- The present capacity of the oil pipeline is designed to transport 1 million barrels per day. Expectations are that the flow will be increased after a couple of years. The present capacity is likely to be doubled to 2 million barrels per day by adding more pump stations and improve pipeline capacity by adding (chemical) condensates to boost flow rates. In the conditions of the environmental permit for the BTC-project (dd. 2 December 2002) no reference is made to the capacity of the oil pipeline and the amount of oil to be transported. For any extension of the present capacity of 1 million barrels per day a new EIA report and a new environmental permit will be required. In that case re-routing of the pipeline for the most sensitive areas, e.g. to avoid the Borjomi area November 2002) becomes a serious option that could be considered and assessed in the required EIA report (see our advisory report of dd. 22 November 2002). The oil pipeline crossing Borjomi could then be used for transporting gas.

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commission for environmental impact assessment

I hereby send you the Advisory Review on the monitoring of the Baku-Tbilisi-Ceyhan Oil Pipeline and the South Caucasus Gas Pipeline project in Georgia.

With warm regards,

Dick de Zeeuw,  
Chairman of the Working Group

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# 1. INTRODUCTION

## 1.1 Request for Advice

This advice is the result of co-operation between the Government of Georgia and the Government of the Netherlands. The Georgian Minister of Environment requested assistance from the Dutch Minister of Environment, in the implementation of EIA for the Baku Tbilisi Ceyhan oil pipeline project (BTC-project) and the South Caucasus gas pipeline project (SC-project).

By letter dated 5 September 2000 the Dutch Minister of Environment requested the Netherlands Commission for Environmental Impact Assessment (hereafter called "the Commission")<sup>1</sup> to advise on the Environmental and Social Impact Assessment (ESIA) to be executed for the BTC-project, see Appendix 1 for this request. During the visit to Georgia in May 2001 the Minister of Environment requested the Commission also to advise on the ESIA for the SC-project. This advisory report deals with the BTC-project and the SC-project.

At the request of the Minister of Environment of Georgia, the Commission prepares this advice<sup>2</sup>. The Minister has requested to assess the compliance of the project with the conditions of the environmental license. The environmental license has conditionally been approved on 2 December 2002. In particular the Commission has been asked to review the following issues:

- Risks of geohazards and the integrity of the pipeline at predetermined sections.
- Review of the Oil Spill Response Plan.
- Capacity development at the Ministry of Environment and the quality of the work of the technical and environmental advisor.

During the visit of the Commission to Georgia the following two issues were mentioned by different stakeholders:

- Reinstatement and biodiversity compensation.
- Social compensation and community investment program.

These issues were reviewed as well in consultation with the Minister.

The technical quality of the oil and the gas pipeline (quality of the pipes, quality of the coating and quality of welding) has not been reviewed by the Commission as the Minister of Environment did not request to assess these issues.

The proponent for the BTC-project is a consortium of companies known as the Baku-Tbilisi-Ceyhan Pipeline Company (BTC Co) led by British Petroleum

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<sup>1</sup> The Netherlands Commission for Environmental Impact Assessment is an independent advisory body, has a legal basis and was established in 1985. For more information see the website: [www.eia.nl](http://www.eia.nl)

<sup>2</sup> The Commission was requested for advice by the Minister in June 2004 during an acquaintance visit of the Commission. In September 2004 the Minister has requested to focus in our review on three issues.



(BP). The other companies are the State Oil Company of the Azerbaijan Republic (SOCAR), Unocal, Statoil, TPAO, Itochu, Ramco, Delta Hess and ENI. Please view appendix 2 for a brief description of the BTC-project and the SC-project.

This advice is prepared by an international working group of experts of the Commission. The group represents the Commission and comprises expertise in the following disciplines: pipeline engineering, engineering geology, ecology, geography, sociology and public participation. For the composition of the working group, please view appendix 2. In order to prepare this advice the working group visited Georgia 10-17 November 2004. Appendix 3 provides an overview of the program of the site visit.

## 1.2 Justification of the Approach

This advice is the fifth consecutive advice prepared by the Commission, regarding the BTC-project and the SC-project<sup>3</sup>. On 2 December 2002 the Minister of Environment signed the Environmental Permit for the BTC-project and the following document: *“Continuing Activities Under the Environmental Permit for the BTC ESIA”*. This document listed 13 conditions that have to be met by BTC Co, see appendix 4-A for these conditions. In December 2002 the Minister of Environment signed the Environmental permit for the SC-project and the following document: *“Continuing Activities under the Environmental Permit for the SCP ESIA”*. This document listed 10 conditions that have to be met by BTC Co, see appendix 4-B for these conditions.

The aim of this review is to check whether, in real terms, the available information and the implementation meet the conditions as stated in these documents and whether they are in accordance with best international practice and standards. In this review the Commission focusses on conditions and issues that have been mentioned by the Minister.

## 1.3 Outline of this Advice

In Chapter two the main findings and recommendations are listed.

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<sup>3</sup> The following advisory reports have been submitted previously. These advisory reports can be downloaded from the website of the Commission [www.eia.nl](http://www.eia.nl) :

- Advisory guidelines for environmental impact assessment (first phase) of the Baku-Tbilisi-Ceyhan Main Export oil pipeline project in Georgia prepared by the Netherlands Commission for EIA (8 June 2001) and approved by the Minister of Environment of Georgia (16 May 2002).
- Advisory review of the draft Environmental and Social Impact Assessment Reports for the Baku – Tbilisi – Ceyhan Oil Pipeline project and the South Caucasus Gas Pipeline in Georgia (19 July 2002).
- Advisory review of the Environmental and Social Impact Assessment Reports for the Baku Tbilisi-Ceyhan Oil Pipeline and the South Caucasus Gas Pipeline in Georgia (22 November 2002).
- Advisory review of the Environmental and Social Impact Assessment Reports and Supplementary Information for the Baku-Tbilisi-Ceyhan Oil Pipeline and the South Caucasus Gas Pipeline in Georgia (15 October 2003).

## **2. MAIN FINDINGS AND RECOMMENDATIONS**

### **2.1 Geohazards and “close-to-zero risk in Borjomi”**

The integrity of a pipeline can be affected by three main causes:

- Technical failures such as poor welding quality or inadequate coating;
- Geo-hazards such as landslides and earthquakes. These hazards might even cause a full rupture of a pipeline;
- Third party risk; sabotage by individuals aiming to tap oil illegally or terrorist activities.

In this advisory report the Commission has, at the request of the Minister of Environment, only assessed the risk of geohazards in the Borjomi area (KP 175 – 201).

The government of Georgia has stated that the risk of oil spills in the section of the BTC-pipeline that will cross the Borjomi area should be “as close to zero as possible”. Scientifically this standard cannot be determined and zero risks do not exist<sup>4</sup>. In practical terms "close-to-zero risk" means: application of best available techniques, defensive design and multi-layer protection. In addition costs, as stated by the government, should not play any role in the decision to apply certain measures.

In Borjomi three areas are subject to an ongoing debate on the severity of geohazard risks that might have an impact on the integrity of the oil pipeline. In these areas landslides have occurred and can be triggered in periods of high rainfall or by an earthquake. The following three sites that have been identified are assessed on measures taken to avoid or minimize the risk of geohazards:

- 1) Gully 1 (Kp 189);
- 2) Gully 4 (Kp 193) at the Kodiana pass
- 3) the Sakire area (Kp 201).

The Commission concludes that for Gully 4 and the Sakire area the mitigating measures, in place at present, do not meet the standard for this area, which is: risk as close to zero as possible. In order to reduce the risk of geohazards, recommendations for drainage and re-evaluation of the slope stability have been provided.

In the design and construction phase, BP followed the commonly used international standards and techniques to perform ‘best professional practice’ for assessing landslides and effects of earthquakes. Due to this methodology which is called the ‘observational method’, geotechnical data have been collected in a very late design phase (i.e. groundwater pressure and depth of

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<sup>4</sup> Close to zero risk means that costs of all measures in order to reduce risks will rise progressive (by up to third or fourth power), so when normal costs are 2 by risk reducing they can go up to 8 or 16 times those costs approaching zero risk. To avoid any misunderstanding zero risk will never be reached.

weathering). The stability of the unsafe slopes should be re-evaluated by using these collected field data. See appendix 5 for further explanation.

### **Recommendations:**

To meet the agreed geotechnical condition of 'as-close-to-zero-as-possible' risk it is recommended to carry out the following measures before the oil pipeline gets stream:

- Static and dynamic slope stability analyses have to be carried out according to Eurocode 7 (Geotechnical design) and Eurocode 8 (Design provisions for earthquake resistance of structures, Part 4 and 5) together with site specific site information on soil and rock together with geotechnical parameters in *worst case* scenario's.
- It is recommended to use quantitative risk criteria for landslides in the Borjomi area. For the Borjomi area a factor of safety of 1.3 for the failure surfaces is recommended in the (dynamic) design of landslide.
- BP should carry out re-assessment of critical slopes in the Borjomi area and the Kordiana and Sakire area, with or without 'dormant' landslides by adopting a static and dynamic geotechnical approach which means using correct information on water pressures, rock and soil parameters.
- The number and the effectiveness of all installed drainage pipes should be re-evaluated. The new measurements should be integrated in a static and dynamic slope stability analysis. The drainage systems should be maintained during the operational period of the pipeline to prevent clogging.
- In order to prevent damage from landslides on the BTC oil pipeline it is recommended to use special stabilisation techniques, i.e. drainage of the soil above the landslides (uphill) in the Sakire area, to protect the oil pipeline from damage by active landslides.
- Continuing measurement of groundwater pressure, slope deformation and site inspection in the Sakire and Kordiana area during the lifetime of the pipeline while on-stream is needed to meet 'as-close-to-zero' risk.
- In order to avoid an increase of landslides due to slope erosion along the Right of Way (RoW) of the BTC pipeline in the Borjomi area, a plan for controlling deforestation should be compiled and implemented within three years.

## 2.2 Oil Spill Response Plan

The complete oil spill response plan for the section of the BTC-project in Georgia as well as the special oil spill plan for Borjomi was not available in November 2004. As a consequence the Commission was not able to review these plans nor the proposed secondary containment measures for the Borjomi area.

The planning is that the oil will start flowing in March 2005. This means that limited time is left: (i) to finalise, review and approve the plan; (ii) to educate people and test the equipment and procedures and: (iii) to construct the necessary secondary containment measures in the Borjomi area. This plan comes late although not too late yet because approval of the plan, as well as training and testing can be done within three months. Construction of secondary containment measures can become a problem due to the bad weather conditions in the Borjomi area until May.

The Commission has noticed that the ministry does not have the operational and technical capacity and experience to respond adequately in the event of an oil spill. Moreover, it is not expected that the Minister will have this type of experts available at the ministry in the near future.

**Recommendations:**

- Before the oil starts flowing the oil spill response plan should be approved and all people who will be involved in the event of an oil spill, should be trained and equipped to deal with such events. In addition, the people living along the pipeline should be informed what to do in case of a spill. It is recommended to establish a pool of international experts. In the event of an oil spill (an) expert(s) from this pool should be on stand-by and available to travel to Georgia within 24 hours to advise the Minister on operational and technical matters regarding the management and the clean-up of an oil spill.

## 2.3 Reinstatement and Biodiversity Compensation

The requirement to restore the right of way (RoW), borrow pits and areas used as to their original conditions is very strict according to the ESIA report. However, it is scientifically questionable if it is possible to restore the RoW in its original conditions because much of the flora will not grow on disturbed and compacted soils for many years. If it is at all possible to restore as agreed upon, it will take long term management of the RoW and it will be an extremely costly procedure.

BTC's term "forest eco-compensation" means "conservation of habitats, forest restoration and re-forestation to compensate for impacts caused by the pipeline". The Commission appreciates this concept of forest eco-compensation. However, the application of forest eco-compensation is limited to compensation of trees at a proposed ratio of 1:1.5. This means that one tree lost will be replaced by one and a half new tree to be planted elsewhere. This BTC proposal does not meet the required compensation ratio of 1:3 as stated in the ESIA report. The Commission understands that BP wants to follow best practise and therefore the ratio might even be increased to 1:5.

From a biodiversity point of view off-site compensation can be more effective than other types of mitigation and certainly more than reinstatement of the RoW to its original floristic composition. See appendix 6 for further explanation on reinstatement and biodiversity compensation.

**Recommendations:**

- The Commission recommends seeking the most effective means of conserving Georgia's biodiversity. More attention should be paid to eco-compensation and possibly less to reinstatement of the original RoW flora.

- Eco-compensation as proposed by BTC should not be limited to trees and the compensation ratio should be in accordance with international (best practice) standards. This means that all areas of high biodiversity value, lost and degraded due to the project, should be compensated by a factor 1:3 as agreed in the ESIA report. Potential sites for compensation should be carefully selected. In most cases quality improvement of degraded habitats is recommended above planting of new forests. The following areas are potentially suitable to improve the quality of the existing biodiversity: Borjomi National Park, including the buffer zone, Narias Veli Wetlands and Tetriskaro Forest.

## 2.4 Social Compensation and Community Investment Programme

The Commission observed that complaints of people affected by the BTC-project or SC-project are often not taken seriously nor adequately handled by BTC Co. That is in accordance with the findings of the Ombudsman of the International Finance Corporation who has assessed a number of complaints from the villages located along the pipeline: Rustavi, Bashkovi, Dgvvari, Sagrasheni, Tetriskaro, Tsikhisjvari, Sadgeri, Tba, Tsemi and Tsalka and presented her findings in four reports<sup>5</sup>. At 20 December 2004 the state of affairs concerning follow up to the Ombudsman's recommendations are as follows: (i) July report; a part of the recommendations is executed; (ii) September report; none of the recommendations are executed; (iii) October report; the problem has been solved, according to the villagers as a consequence of permanently blocking the access road to the RoW, not because of the Ombudsman's recommendation that was followed by BTC Co.; (iv) November report; until 20 December none of the recommendations were executed. (see footnote). The existing appeal mechanism is not effective, mainly because it is not independent. The Commission underlines the importance to establish an independent appeal mechanism to assess complaints of people affected directly or indirectly by the BTC-project or the SC-project.

In February 2003 the implementation of the Community Investment programme (CIP) was set in motion. Goal of the programme is to promote social and economic environmentally sustainable development for the communities along the pipeline route. CARE International carries out execution of the programme for the western part and Mercy corps is responsible for the execution in the eastern part. The Commission is of the opinion that the Community Investment Programme is a well-designed plan. However, interviews with individuals and groups of people in twelve of the villages showed that adequate implementation is prone to face difficulties due to lack of information<sup>6</sup>. Main findings based upon the interviews:

- People in the villages were not sufficiently informed about the projects in general and their rights and responsibilities in particular. Apart from one notable exception the issue of land compensation appears to be clear to all people concerned. Information about other forms of compensation is generally not available and people do not know where to go or whom to address with their complaints;
- Since the start of the project a great number of people somehow connected to the pipeline project, have visited the villages but the inhabitants do not

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<sup>5</sup> Compliance Advisor / Ombudsman; International Finance Corporation and Multilateral Investment Guarantee Agency: Assessment Report; Complaint regarding the Baku-Tbilisi-Ceyhan (BTC) Pipeline project Rustavi, Georgia, July 2004.

Compliance Advisor / Ombudsman; International Finance Corporation and Multilateral Investment Guarantee Agency: Assessment Report; Complaint regarding the Baku-Tbilisi-Ceyhan (BTC) Pipeline project Borjomi region, Georgia, September 2004.

Compliance Advisor / Ombudsman; International Finance Corporation and Multilateral Investment Guarantee Agency: Assessment Report; Complaint regarding the Baku-Tbilisi-Ceyhan (BTC) Pipeline project Tba, Tsemi and Sadgeri, Georgia, October 2004.

Compliance Advisor / Ombudsman; International Finance Corporation and Multilateral Investment Guarantee Agency: Assessment Report; Complaint regarding the Baku-Tbilisi-Ceyhan (BTC) Pipeline project Tsalka, Georgia, November 2004.

<sup>6</sup> In the following villages individuals and groups of people have been interviewed: Djandari, Lelashkha, Nazarlo, Kesalo, Kumisi, Dzveli Marabda, Akhali Marabda, Khaishi, Krtsanisi, Rustavi, Tsikhisjvari, Andeziti.

know who is who; generally they are known as "pipeline people". The villagers do not know who these people are, which company they work for or in which capacity they visit their village.

- The majority of villagers have not participated in the Community Investment Programme and they do not know the selection criteria for the people who were selected for participation. The perception exists that friends and relatives were selected. Women were hardly represented in this process;
- In a number of villages the people were satisfied with activities executed by the CIP such as rehabilitation of roads and water supply or irrigation systems. However, the majority did not know a lot about CIP and Mercy Corps as well as CARE International are hardly known at all.

The Commission concludes that the problems observed are predominantly the result of BTC Co.'s lack of direct communication with the people in the affected villages. Affected people have neither been sufficiently nor timely informed about their rights and responsibilities. To restore people's confidence in BTC Co. and raise ownership the CIP should continue during the operational period of the pipelines. In addition an independent appeal mechanism should be established.

**Recommendations:**

- The Commission recommends to continue the implementation of the Community Investment Programme during the operational phase of the pipeline projects. The execution of the CIP should become transparent and all stakeholders in a village should be represented.
- The Commission recommends the establishment of an independent appeal mechanism in Georgia in order to assess complaints of people who are somehow affected by the BTC-project and / or the SC-project.

## 2.5 Capacity development in the MoE

In 2004 a team of four people was established in the Ministry of Environment. This team is responsible for monitoring of the BTC-project and the SC-project. In November 2004 the group expanded to six people. Apart from the chairman the members have no previous experience, monitoring projects of this kind. Lack of equipment and resources makes it difficult for this team to execute its task adequately. In November 2004 the team received a car to expedite its task but at the moment there is still a lack of basic equipment such as a photo camera and computers.

The environmental and technical advisor started their work in 2002. They focused their activities on technical advisory work. The Commission noted that their work has not yet resulted in an adequate monitoring capacity at the ministry.

**Recommendation:**

- The capacity to monitor the BTC-project and SC-project during the construction phase and during the operational phase of both pipelines should be further strengthened. Therefore ongoing capacity building of the Ministry of Environment's monitoring team is urgently needed.