

6. Environmental assessment and the BTC project (Turkey section)

Evaluation of project documents and performance against World Bank standards, EBRD standards and the EU Directive on Environmental Impact Assessment

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6.1 Summary

The Environmental Impact Assessment (EIA) for the BTC project was reviewed against the standards required under the legal regime laid down in the Host Government Agreement and the BOTAS/BTC Co. Turnkey Agreement, namely the EU Directive on EIA and the IFIs' safeguard policies on environmental assessment (in particular IFC OP 4.01 Environmental Assessment).

This review found:

- **The HGA has already been used to short-circuit best practice on site investigation and consultation procedures during the scoping phase of the EIA in order not to compromise the construction schedule, contrary to BTC Co.'s assurances that the agreement would not be used to undermine environmental best practice;**
- **The EIA partially or fully breaches the EU Directive on Environmental Impact Assessment on 14 counts (on top of the 4 related to consultation – making 18 in total), in potential violation of host country law as defined by the HGA;**
- **The EIA partially or fully breaches the World Bank's environmental assessment policy (OP 4.01) on 10 further counts, again in potential violation of host country law as defined by the HGA – on top of the breaches relating to consultation ([see chapter 3](#)) and assessment of alternatives ([see chapter 7](#));**
- **The EIA is unclear as to which IFI standards are applicable and thus as to the specifics of the legal regime that prevails for the project;**
- **There is controversy over the order of precedence of the relevant standards in the event of any conflict between them;**
- **The EIA fails to specify which EU Directives, apart from the Directive on EIA, are applicable to the project.**

Specifically:

- **Construction of the BTC pipeline began before an EIA was approved;**
- **The HGA has been used to override normal procedures for scoping study;**
- **Assessment of impacts on flora and fauna is inadequate;**
- **The project has failed to complete an adequate baseline study;**
- **The EIA fails to assess the sustainability of the project;**
- **The EIA's treatment of seismic risks is inadequate and flawed;**
- **The project has failed to reduce or remedy risk of oil spills at Ceyhan and of decommissioning;**
- **There has been insufficient analysis of species;**
- **The EIA fails to present original data;**
- **Accuracy, reliability, methodology and gaps are not indicated in the EIA;**

- **Consultation with affected villagers has been inadequate and flawed;**
- **The independence of EA experts is questioned;**
- **There has been inadequate assessment of alternatives;**
- **The project has failed to address trans-boundary impacts of tanker traffic and to inform affected Member States;**
- **The project has failed to consult with authorities and public in affected Member States;**
- **The project has failed to consult on trans-boundary impacts;**
- **The project has failed to address indirect impacts on climate.**

6.2 Introduction

6.3 Legal regime for environmental assessment – Controversies over applicable standards

Three agreements set the legal framework for *environmental assessment* of the BTC pipeline in Turkey:

- The **Intergovernmental Agreement (IGA)** signed between Turkey, Azerbaijan and Georgia;
- The **Host Government Agreement (HGA)** signed between the Government of Turkey and BTC Co; and
- Appendix A of the **Lump Sum Turnkey Agreement (LSTA)** agreed between BTC Co. and BOTAS, the Turkish contractor which will build the pipeline.

Under these agreements, which are now enacted into national law, the project developers are legally obliged to ensure that the EIA for the project meets the following standards:

1. IGA requirements

- “. . . international standards and practices within the Petroleum pipeline industry (which shall in no event be less stringent than those generally applied within member states of the European Union) . . .”¹

2. HGA requirements:

- The “Environmental Strategy Products and implementation of the environmental strategy reflected therein shall be **in accordance with the standards and practices generally prevailing in the international Petroleum pipeline industry.**”²
- “Creation of the EIA shall also be in accordance with **the principles of EU Directive 85/337/EEC (as amended by EU Directive 97/11/EC).**”³

3. LSTA requirements

- The standards set by International Financial Institutions, notably the World Bank

The agreements further require compliance with:

- National legislation and international conventions in force in Turkey – to the extent such legislation does not conflict with the undertakings in the IGA, HGA and Turnkey Agreement.⁴

6.3.1 Controversy over hierarchy of standards

There is controversy over the above standards’ order of precedence in the event of a conflict. BTC Co. sets the World Bank / IFI standards lower in the hierarchy than the HGA and

¹ IGA, Art. IV.

² HGA, Appendix 5, Section 3.10, Turnkey Agreement, Appendix A, Section 4.3.7

³ HGA, Appendix 5, Section 3.10. The EIA also quotes “Turnkey Agreement, Appendix A, Section 4.3.7” (see EIA BTC project, Appendix D “Legislative and Policy Framework”, October 2002, p.D-12). This latter reference conflicts with references in the LSTA’s Appendix B

⁴ BTC Co., BTC Project, Supplementary lenders information pack, Briefing Note on Environmental Standards, unpaginated. June 2003.

national legislation⁵: thus, the application of the World Bank's resettlement policy (OD 4.30), which requires negotiated agreements on compensation prior to construction, could be overruled by national legislation which does not.

However, this is contestable. For instance, the Lump Sum Turnkey Agreement (LTSA), which forms part of the HGA, obliges the project to meet World Bank/IFI standards, including OD 4.30.

The World Bank/IFI standards should thus have equal status with other project standards specified in the HGA, since they are part of the HGA: moreover, under the HGA, they would take precedence over existing environmental and social laws to the extent that such local laws conflict with the standards in the HGA: in effect, the national "get out" clause allowing for construction to begin before compensation has been negotiated would be overridden by the LTSA.

6.3.2 Which IFI standards?

There is also considerable confusion within the EIA and other documents as to which international finance institution (IFI) standards apply to the project under the Turnkey Agreement, an issue of considerable importance given that the standards in the Turnkey Agreement constitute local law.

For example, the EIA states:

*"With regard to environmental, social, health and safety (ESHS) protection standards and safeguards, the Turnkey Agreement identifies certain requirements including: . . . The EIA is required to fulfill World Bank requirements and (by implication) International Financial Corporation (IFC) and other international financial institution (IFI) guidelines..."*⁶

Elsewhere, however, the same document limits the commitment to World Bank standards alone,⁷ a position that is reiterated in the EIA commitments register⁸ and the Joint Statement by BTC Co and the Host Governments.⁹ Meanwhile, in a briefing note prepared in June 2003 to clarify the legal framework for the project, BTC Co. refers on one page only to World Bank standards¹⁰ and on another to IFI standards.¹¹

Without access to the text of the relevant Appendix in the Lump Sum Turnkey Agreement, however, it is not possible to resolve these discrepancies. However, due to a lack of transparency over the Turnkey Agreement, the Appendix is not available to the public. Although the main body of the LSTA and a number of its appendices are posted on the BTC Co. website, **Appendix A**,¹² **which sets out the international standards to which the**

⁵ Ibid.

⁶ EIA BTC project, Appendix D "Legislative and Policy Framework", October 2002, p.D-7.

⁷ EIA BTC project, Appendix D "Legislative and Policy Framework", October 2002, p.D-12.

⁸ EIA BTC project, EIA Appendices, Commitments, unpaginated. "The guidelines and standards set by the following organisations will also apply to the BTC Project: World Bank Operational Directives and Guidance" [ID APC1E16], May 2003.

⁹ Joint Statement, 16 May 2003: "The ESAs approved by each state . . . reflect the . . . commitment to the environmental and social policies and guidelines of the World Bank Group."

¹⁰ Supplementary lenders information pack, Briefing Note on Environmental Standards, "Introduction", June 2003, unpaginated

¹¹ Supplementary lenders information pack, Briefing Note on Environmental Standards, "Introduction", June 2003, B-7.

¹² Some BTC Co. documents refer to this Appendix as Appendix A, others as Appendix 4. The LSTA itself refers to Appendix A and specifically names it as the Appendix where the standards are set out. There is further confusion, however, as to which paragraphs in

environmental assessment must comply, has been excised from the document. Other websites which we have accessed and where the LTSA is posted similarly lack any version that contains the Appendix. **Given that the LTSA now forms part of the legal regime governing the pipeline project, this lack of transparency is of grave concern:** in the absence of easy access to the Appendix, stakeholders have effectively been deprived of a document that is key to assessing the extent to which the project promoters are complying with their legal obligations.

Nonetheless, for the purposes of this review, it is assumed that IFI standards are the legal benchmark for environmental assessment for the project. These would include the EBRD's environmental policy, even though the EBRD has not been asked to fund the Turkey section of the project.

6.3.3 Applicability of EU Directives

The EIA's Commitments Appendix states "All aspects of the Project will be undertaken in accordance with . . . EC Directives."¹³ Since this commitment is made in one of the documents that constitutes the "Environmental Strategy Product", it is, on the face of it, be legally binding.¹⁴

However, the commitment would appear to be at odds with the undertakings in the Intergovernmental Agreement, which limits the applicability of EU standards. Article IV of the Intergovernmental Agreement states:

"Each State shall cooperate and coordinate with the others and the applicable Project Investors in the formulation and establishment of uniform technical, safety and environmental standards for the construction, operation, repair, replacement, capacity expansion or extension (such as laterals) and maintenance of the Facilities in accordance with international standards and practices within the Petroleum pipeline industry (which shall in no event be less stringent than those generally applied within member states of the European Union) and the requirements as set forth in the relevant Host Government Agreement, which shall apply notwithstanding any standards and practices set forth in the domestic law of the respective State."

It is clear from the above that the IGA is not intended to incorporate the full body of EC law into the project agreement. Its commitments on EU standards and practices extend only to those (unspecified) "standards" that relate to "technical, safety and environmental" practices within the petroleum industry. For example, it is apparent from the Environmental

the Appendix set out the standards for the EIA. The EIA itself refers to para 4.3.7 (EIA, Appendix B of the LSTA refers to Article 5.1.13 (Appendix B, p.B-8).

¹³ EIA Commitments Register, unpaginated, ID APC1E17. See also: ID APC1E16: "The guidelines and standards set by the following organisations will also apply to the BTC project . . . European Union Directives and Guidance."

¹⁴ As BTC Co. acknowledges: "The ESAs and other documents and studies required under the HGAs are referred to in the HGAs as the 'Environmental Strategy Product' and the standards referenced therein are part of the prevailing legal regime governing the BTC Project in each of the host countries." See: BTC Project Supplementary Lenders Information Pack, Briefing Note on Environmental Standards, June 2003, B-3.

Commitments Register in the EIA that EC law is not extended to labour rights for workers on the project or to health standards.¹⁵

The conflict between the wording of the Article IV and the Commitments Register is not resolved in the EIA. On the contrary, the Environmental Management and Monitoring Plan (EMMP) only serves to confuse the issue still further by applying non-EC *environmental* standards where EC standards exist. For example, on emissions from pump drivers, the EMMP specifies World Bank standards and Turkish regulations as the benchmark standard:¹⁶ no mention is made of relevant EU Directives, despite the commitment to observe “all EC Directives”. Key EC environmental Directives – such as SEA Directive (2001/42/EC) are not even mentioned in the Commitments Register.

This lack of clarity over the EU Directives that apply to the project constitutes a clear breach of the IFC’s Environmental Assessment policy (OP 4.01), which stipulates:

“The EA process, as laid out in IFC’s OP 4.01 therefore requires a clear identification of national legal requirements related to the environment.”¹⁷

As a result of this omission, Executive Directors are denied the basis on which to judge whether or not the project meets – or is in a position to meet – the IFC’s requirement that the project complies with host country law.¹⁸ This should be remedied before any decision is made to finance the project.

In the absence of a clear-cut list of applicable Directives and guidelines, this review examines only the Directive on Environmental Impact Assessment. However, were other Directives to be applicable, then a significant number of further breaches of the relevant directives would be likely to be found, in both the design and implementation of the project.

¹⁵ EIA for BTC Project, Commitments Appendices, unpaginated, ID No. APA8S2. The commitment states: “Both Turkish regulations and international standards for workers will be adhered to by the project”. Appendix A8 of the PCDP, to which the ID No. refers for more documentation, makes no mention of specific EC legislation. The only named set of standards is the BTC Project’s HSE policy.

¹⁶ EIA Commitments Appendix, unpaginated, ID No. APB2E1.

¹⁷ IFC OP 4.01, Consultation Comments.

¹⁸ IFC OP 4.01, Consultation Comments: “IFC requires that investments comply with host country environmental, health and safety requirements”; and “IFC’s environmental and social review procedure (ESRP) requires the project sponsor to ensure compliance with host country requirements.”

6.4 Use of the HGA to override international best practice on environmental assessment

As noted above (see section 6.3), the BTC project is required under the Turnkey Agreement to meet international financial institution (IFI)/ World Bank standards with regard to environmental assessment, although there is confusion as to which IFI standards apply (see section 6.3.2).

Given that this is a legal requirement, it is of grave concern to learn that the HGA has been invoked to override the implementation of such IFI standards. Both the IFC¹⁹ and the EBRD²⁰, for example, require that a scoping exercise is undertaken to identify the issues that require addressing in the EIA. Although BTC Co. insists that it was never its intention that the clauses of the HGA should be invoked to override existing and future protections of the environment, human rights or workers' rights,²¹ **the HGA has already been used to short-circuit best practice on site investigation and consultation procedures during the scoping phase of the EIA in order not to compromise the construction schedule:**

- In a letter to the BTC consortium, the Ministry of Agriculture and Rural Affairs waives the requirement for site investigations before granting approval for the pipeline route “in accordance with the Host Government Agreement”.²²
- The normal requirement, under Turkey's environmental regulations, for a 60 day period for the Ministry of the Environment to review and approve the final draft of the EIA, in order to give a development consent, was reduced to 30 days for BTC, in order to ensure that BOTAS could complete the project in the period specified under the Turnkey agreement.

In a letter to BOTAS dated 30 November 2001, the Prime Ministry's Undersecretariat of Maritime Affairs states:

“ . . . our country undertook some commitments by means of the completion of the project on time according to the statements of the project agreement, accordingly, *in order to assure that the project activities would be carried out as determined in the agreements and within the designated period*, we are under the obligation of taking the required permission, licence and documents within 30 days beginning from the presentation date of the project stipulations, in that content the EIA Report studies

¹⁹ IFC OP 4.01, Environmental Assessment, para 12: For all Category A projects and as appropriate for Category B projects during the EA process, the project sponsor consults project-affected groups and local nongovernmental organizations (NGOs) about the project's environmental aspects and takes their views into account. The project sponsor initiates such consultations as early as possible. For Category A projects, the project sponsor consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized . . .

²⁰ EBRD Environmental Policy, Annex 2, Consultation with the Public, p.19: “By means of a scoping process, the project sponsor must ensure identification of all key issues, in particular, by consulting the affected public on the project and taking their comments into account. This scoping process will involve contact by the project sponsor with representatives of the affected public, government agencies, local authorities and other organisations.”

²¹ See for example, BTC Human Rights Undertaking, 22 September 2003.

²² Letter from Dr. Huseyin Sungur, Ministry of Agriculture and Rural Affairs (General Directorate of Protection and Control) to General Directorate of Petroleum Pipeline Corporation, “BTC Crude Oil Pipeline Project EIA Activities”, 29 November 2001, in EIA, Appendix A8 – Consultation Results, October 2002: “It is stated that regarding the Baku-Tbilisi-Ceyhan crued oil pipeline project, site investigation is not required by the Ministry of Environment, General Directorate of Environmental Impact Assessment and Planning, in accordance with the Host Government Agreements . . .”

was started, *the EIA Procedure was carried out different than the EIA Regulations . . .*” (italics added).²³

This change to the normal process was also confirmed to NGOs in an interview with a representative of the BTC’s environmental baseline contractor, which played one of the main roles in compiling the EIA.²⁴

- The Protocol to the Cultural Heritage Management Plan also stresses speed as a priority: “This Protocol is prepared on account of the importance of Baku-Tbilisi-Ceyhan Crude Oil Pipeline (BTC Pipeline) Project, *aiming not to cause any delay in project activities* and to secure and rescue the archaeological entities that may be encountered throughout the pipeline route, appropriately and as soon as possible.”²⁵ There is evidence to suggest that this speed undermined effectiveness of the cultural heritage survey (see chapter 5), a key part of the EIA process.

It is questionable whether such truncation of the EIA procedures accords with the IGA’s requirement that project standards “shall in no event be less stringent than those generally applied within member states of the European Union”. As such, the use of the HGAs to override Turkey’s EIA procedures – which are intended to comply with EU practice – constitutes a possible breach of the IGA. We would recommend that the circumstances and legality of this are investigated further by the IFC Board before any decision to commit funding is contemplated.

²³ Letter from Prime Ministry Undersecretariat of Maritime Affairs, General Directorate of Marine Transportation, to Petroleum Pipeline Corporation, 30 November 2001, in EIA, Appendix A8 – Consultation Results, October 2002, A8-30.

²⁴ Meeting of the Kurdish Human Rights Project, PLATFORM and Campagna Riforma Banca Mondiale with Coskun Yurteri of Envy, March 2003, reported in Second International Fact-Finding Mission Report, BTC Turkish section, pub. June 2003, p.50

²⁵ BTC Project EIA, Turkey, Final EIA, October 2002, Appendix C7—Cultural Heritage Management Plan, Annex A, C7-21, emphasis added

6.5 EU Directive on EIA

The Host Government Agreement (HGA) signed between the Government of Turkey and the Baku-Tbilisi-Ceyhan (BTC) consortium stipulates that the EIA for the BTC project should be “in accordance with the principles” of the Directive.²⁶

It is thus of grave concern that the EIA for the project, as approved fit for purpose by IFC and EBRD staff, falls far short of compliance with the Directive. As a result, it may be argued that the project not only fails to comply with its own legal regime, as established under the Host Government Agreements, but also places Turkey in potential breach of its accession obligations, by moving Turkey *away from* its undertaking to the European Commission to implement the EIA Directive (see chapter 2 – Legal Framework).

Detailed analysis of the EIA for the project reveals **9 major breaches** of the Directive – all of which would constitute potential violation of host country law as defined by the project agreements. They are set out below:

6.5.1 Construction of the BTC pipeline began before an EIA was approved

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
Article 2(1) No construction prior to approval of EIA	<i>“ Member States shall adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects. These projects are defined in Article 4.”</i>	1. Construction began prior to approval of EIA by Turkish Government	Non compliance

²⁶ HGA, Appendix 5, Section 3.10.

6.5.1.1 Construction began prior to approval of EIA by Turkish Government

The Directive requires that an EIA is approved by the competent environmental authority prior to a consent being granted. In the case of the BTC pipeline, the EIA was made available in June 2002, with a 60-day comment period. The EIA was approved by the Ministry of the Environment in October 2002.²⁷ However, construction officially started on the Turkish section of the project on 19 June 2002 – that is, four months before approval and before the comment period was over.²⁸ Indeed, at the time, the EIA had only just been disclosed to the public for the 60-day consultation period. A ceremony to mark the start of construction, attended by deputy prime minister Mesut Yilmaz, also took place on 26th September, again before official approval of the EIA.²⁹

6.5.2 Inadequate Assessment of impacts on Flora and Fauna

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
Article 3, bullet 1 Identify direct and indirect impacts on flora and fauna	<i>“The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 11, the direct and indirect effects of the project on the following factors . . . human beings, flora and fauna”</i>	1. EIA was undertaken over less than a year and fieldwork was limited. 2. Major sites were not surveyed. 3. Time spent in individual sites was inadequate to obtain necessary baseline information	Partial compliance

There is little or no baseline data already published for many of the areas through which the pipeline would pass. Detailed field work, over the full range of seasons, is thus required to identify and assess the full range of impacts on flora and fauna. Yet the EIA was undertaken over less than a year and fieldwork was limited: indeed, the environmental baseline contractor for the project has admitted that all sites were only surveyed **once** for species present, in the summer, and therefore have not been examined for species present in other seasons, and that that some bird species and plant species have not yet been examined, but

²⁷ BP AZERBAIJAN BUSINESS UPDATE, December 13, 2002, Year-End Press Meeting with David Woodward [http://www.ecbaku.com/docs/media/press/eng/BP%20business%20update%20\(eng\).doc](http://www.ecbaku.com/docs/media/press/eng/BP%20business%20update%20(eng).doc).

²⁸ US Dept of Energy, Energy Information Administration, Azerbaijan: Oil and Natural Gas Export Options, June 2002, <http://www.eia.doe.gov/emeu/cabs/azerexpo.html>. The Turkish Energy Minister also announced on 3 June 2002 that construction would begin on 19th June.

²⁹ *Agence France Presse*, 26/9/02, ‘Turkey starts work on east-west oil pipeline’

will be surveyed during construction.³⁰ The bird survey, for example, was undertaken during one season and over just a couple of weeks. In the case of the Ulas and Alacorak lakes area – currently being considered for listing as an Internationally Important Wetland under the Ramsar Convention - the survey team spent just one day on site. The EIA acknowledges its lack of knowledge on the impacts of the pipeline on birdlife: “The degree to which the lakes are used as a staging point by migratory waders and waterfowl is as yet unknown”.³¹ Similarly, baseline data are lacking for a range of other species, including on the nesting patterns of the Green Turtle, which are potentially affected by the oil terminal at Yumurtalik.³²

(For further details, see sections 6.6.3 and 6.6.4, below)

6.5.3 Inadequate and flawed consultation with affected villagers

(See section 3.7.1 of chapter 3, Consultation, for details)

6.5.4 Failure to address trans-boundary impacts of tanker traffic and to inform affected Member States

(See section 3.7.2 of chapter 2, Consultation, for details)

6.5.5 Failure to consult with authorities and public in affected Member States

(See section 3.7.3 of chapter 2, Consultation, for details)

6.5.6 Failure to consult on trans-boundary impacts

(See section 3.7.4 of chapter 2, Consultation, for details)

6.5.7 Failure to address indirect impacts on climate

Relevant paragraph and law requirement	Specific obligations	Evaluation of compliance	Extent of compliance
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³⁰ Meeting of the Kurdish Human Rights Project, PLATFORM and Campagna Riforma Banca Mondiale with Coskun Yurteri of Envy, March 2003, reported in Second International Fact-Finding Mission Report, BTC Turkish section, pub. June 2003, p. 50

³¹ EIA, Volume II, Supplement I, June 2002, p.6-542.

³² For further details, see: Department of Environmental Sciences and Policy, Central European University, “Environmental Impact Assessment Report – Turkish Section of the Baku-Tbilisi-Ceyhan pipeline: Quality Assessment”, Budapest, 2003, p.12.

key requirement			
Article 3, bullet 2 Direct and Indirect effects on climate to be assessed	<i>“The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 11, the direct and indirect effects of the project on the following factors . . . soil, water, air, climate and the landscape . . .”</i>	1. Direct impacts on climate of emissions from pipeline considered but no assessment of wider climatic impacts resulting for end-use of oil transported.	Partial compliance

The EIA assesses the climate impacts of greenhouse gas emissions as a result of the day-to-day operations of the pipeline. However, it contains no study of the indirect impact of the project on climate, through the consumption of the oil it carries. This is a major omission, since the project is specifically intended to bring oil from the Caspian for consumption in Europe and the US. It has been calculated that the oil exported by BTC will add 160 million tonnes of CO₂ to the atmosphere over the 40 year life-span of the project.³³ The failure to assess the climatic impacts of these emissions is a clear breach of Article 3 of the Directive. It is also a failure to comply with recommendations in the World Bank’s Handbook on Environmental Assessment.³⁴

6.5.8 Failure to Reduce or Remedy Risk of Oil Spills at Ceyhan and of Decommissioning

³³ See Greg Muttitt and James Marriott, Some Common Concerns (pub. PLATFORM et al, 2002), p.159

³⁴ The World Bank acknowledges that projects such as BTC are relevant to climate change: “Numerous development activities, such as the following, may influence climate change and ozone depletion: energy projects involving increased production, transportation, and consumption of fossil fuels; . . .” [World Bank, Environmental Assessment Sourcebook, Chapter 2, paragraph 18] The World Bank makes some recommendations on how to address the climate change issue – “Actions that can reduce the risk associated with global change, include: scaling down and/or delaying long-lived projects in favor of shorter-lived ones until future regional climatic change can be more accurately predicted.” [World Bank, Environmental Assessment Sourcebook, Chapter 2, paragraph 24] Or another suggestion: “Options to reduce a project’s contribution to global change without adversely affecting the cost or success of the project should be evaluated.” [World Bank, Environmental Assessment Sourcebook, Chapter 2, paragraph 26] “The Bank will not finance projects that contravene any international environmental agreement to which the member country concerned is a party.” [World Bank, Environmental Assessment Sourcebook, Update no. 10, March 1996, ‘International agreements on environment and natural resources: relevance and application in environmental assessment’, p.2]

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
Article 5 (3), bullet 2 Mitigation of environmental impacts	<i>“The information to be provided by the developer in accordance with paragraph 1 shall include at least . . . a description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects . . .”</i>	1. Inadequate measures to mitigate oil spills 2. Inadequate measures to mitigate impacts of decommissioning	Partial compliance

A. Oil Spills

The oil spill response plans outlined in the EIA, as approved by the Government of Turkey, are predicated on a maximum spillage of 70,000 barrels or 10,000 tonnes, far below the potential spillage if a supertanker (load: 300,000 tonnes) was involved in a serious accident. The EIA does not consider the risks of spillage outside the immediate area of the terminal. For reference, 10,000 tonnes is approximately the size of the Erika spill off-France. Exxon Valdez (approx 40,000 tonnes), Braer (70,000 plus) and Sea Empress (84,000) were all much larger and each of these vessels was much smaller (except the Sea Empress) than this terminal will be accommodating.

B. Decommissioning

The pipeline is envisaged to be operational for 40 years, by which time it will be heavily contaminated with a range of toxic residues. However, no decommissioning plan is set out in the EIA, and the general impression conveyed by both the EIA and its compilers is that decommissioning is not likely to proceed.³⁵ There is therefore no mitigation plan in operation to prevent the gradual leakage of highly toxic residues into the local ecosystem.

6.5.9 Inadequate Assessment of Alternatives

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
Article 5 (3), bullet 4 Assessment of	<i>“The information to be provided by the developer in accordance with</i>	...	Non compliance

³⁵ Dr. Coskun Yurteri, head of ENVY environmental contractors, interview with Baku-Ceyhan Campaign, Ankara, 18 March 2003

<p>project alternatives</p>	<p><i>paragraph 1 shall include at least . . . an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects.”</i></p>		
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(See chapter 7, Assessment of project alternatives).

6.6 IFC policy OP 4.01 Environmental assessment

6.6.1 Independence of EA experts questioned

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
Article 4 Independence of EA experts	<i>“For Category A projects the project sponsor retains independent EA experts not affiliated with the project to carry out the EA.”</i>	1. EA contractors not independent (by World Bank definition) 2. No independent advisers appointed	Possible Non compliance

6.6.1.1 EA contractors not independent (by World Bank definition)

The International Finance Corporation (IFC) requires that for it to finance a Category A project (which BTC is):

“The project sponsor retains independent EA experts not affiliated with the project to carry out the EA.”³⁶

This point is clarified in a footnote:

“The project sponsor ensures that when individuals or entities are engaged to carry out EA activities, any conflict of interest is avoided. For example, when an independent EA is required, it is not carried out by the consultants hired to prepare the engineering design.”³⁷

It is thus of concern that ERM, the consultancy that carried out the EIA for Turkey, is part of the same commercial group that has subsequently bid for contracts that arise from the recommendations in the EIA or from other work undertaken in relation to the BTC project. For example, ERM India has a monitoring contract on the Turkish section and ERM bid for the community investment programme contract in Georgia. It is also of concern that, in Azerbaijan, where ERM also undertook the EIA, BP accounts for more than 50% of ERM’s income.³⁸

³⁶ International Finance Corporation, OP 4.01, Environmental Assessment, paragraph 4

³⁷ International Finance Corporation, OP 4.01, Environmental Assessment, paragraph 4, footnote 6

³⁸ Interview with ERM, Baku, December 2001.

6.6.1.2 No independent advisers appointed

The IFC further requires that:

*“For Category A projects that are highly risky or contentious or that involve serious and multidimensional environmental concerns, the project sponsor should normally also engage an advisory panel of independent, internationally recognized environmental specialists to advise on all aspects of the project relevant to the EA.”*³⁹

Again, this is explained in a footnote:

*“The panel ... advises the project sponsor specifically on the following aspects: (a) the terms of reference for the EA, (b) key issues and methods for preparing the EA, (c) recommendations and findings of the EA, (d) implementation of the EA's recommendations, and (e) development of environmental management capacity.”*⁴⁰

No specialists were employed during the EIA process. (The Caspian Development Advisory Panel was only employed after completion of the EIA, and assessment of the EIA was not one of its remits).

6.6.2 HGA used to override normal procedures for Scoping study

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
Para 12	<i>“For Category A projects, the project sponsor consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized, and (b) once a draft EA report is prepared. In addition, the project sponsor consults with such groups throughout</i>	1. HGA invoked to curtail consultation period on scoping study from 60 days to 30 days.	Partial compliance

³⁹ International Finance Corporation, OP 4.01, Environmental Assessment, paragraph 4

⁴⁰ International Finance Corporation, OP 4.01, Environmental Assessment, paragraph 4, footnote 7

	<i>project implementation, as necessary to address EA related issues that affect them.”</i>		
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6.6.2.1 HGA invoked to curtail consultation period on scoping study from 60 days to 30 days

BTC Co. undertook the two required consultation processes. However, as documented above (see section 6.4), the Host Government Agreement was invoked to curtail the timing of the first scoping consultation from 60 days to 30 days in order that the project remained on schedule.

Other violations of the consultation process are documented in chapter 3, Consultation.

6.6.3 Failure to complete adequate baseline study

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
OP 4.01, Annex B	<i>“describe relevant physical, biological, and socioeconomic conditions”</i>	1. Data collection is incomplete 2. Insufficient data for accurate representation of species 3. Failure to examine species during different seasons	Non compliance

The International Finance Corporation (IFC) requires that for IFC to finance a project, the project Environmental Assessment:

*“describes relevant physical, biological, and socioeconomic conditions”*⁴¹

The details of this requirement are explained more in the World Bank’s Environmental Assessment Sourcebook, which is referenced in OP 4.01 as providing more relevant information and guidance on the IFC requirements:

“(a) Physical environment: geology; topography; soils; climate and meteorology; ambient air quality; surface and ground- water hydrology; coastal and oceanic parameters; existing sources of air emissions; existing water pollution discharges; and receiving water quality.

⁴¹ International Finance Corporation, OP 4.01, Environmental Assessment, Annex B – ‘Content of an Environmental Assessment Report for a Category A Project’, clause d)

(b) *Biological environment: flora; fauna; rare or endangered species; sensitive habitats, including parks or preserves, significant natural sites, etc.; species of commercial importance; and species with potential to become nuisances, vectors or dangerous.*

(c) *Socio-cultural environment (include both present and projected where appropriate): population; land use; planned development activities; community structure; employment; distribution of income, goods and services; recreation; public health; cultural properties; tribal peoples; and customs, aspirations and attitudes.*"⁴²

Baseline conditions and data are considered in Chapter 5 of the Environmental Impact Assessment (EIA) for the Turkey section of the Baku-Tbilisi-Ceyhan (BTC) pipeline.

6.6.3.1 Incomplete data collection

BTC's biological baseline data is entirely insufficient and thus fails comprehensively to meet the requirements of the World Bank. The vast majority of the route was not studied; instead BTC just focussed on a few sites (see table below), and assumed that 'similar' habitats contained the same ecology – a very dubious assumption. All data was only acquired during one season, making it necessarily incomplete, and directly in breach of World Bank recommendations.

6.6.3.2 Insufficient data for accurate representation

The World Bank Sourcebook cautions that borrowers / project sponsors should avoid pitfalls in the baseline data collection, including:

*"sampling the correct parameters but timing the observations incorrectly or making an insufficient number of observations for an acceptable representation of the phenomena being studied"*⁴³

BTC admits that *"Turkey is relatively under-surveyed"*⁴⁴. It is thus subject to the World Bank guidance that:

*"Where there is a lack of information, EA reports should provide baseline data on the biodiversity in the project area and its area of influence"*⁴⁵

According to the BTC EIA, biological baseline studies were undertaken in three stages:

Stage	When undertaken	Output
Phase 1 Habitat Survey ⁴⁶	June and September 2000	<i>"The Phase 1 Habitat Survey provided a basic record of the extent and distribution of habitats along the route and generated baseline data (including the types of habitat present, their extent, their key components and lists of associated flora and fauna species)"</i>

⁴² World Bank, Environmental Assessment Sourcebook, Chapter 1, Annex 1-3, paragraph 8

⁴³ World Bank, Environmental Assessment Sourcebook, Chapter 1, paragraph 22 (b)

⁴⁴ BTC EIA, Turkey, October 2002, section 5.7.1.2 – 'Phase 2 Habitat Survey'

⁴⁵ World Bank, Environmental Assessment Sourcebook, Update no. 20, October 1997, 'Biodiversity and environmental assessment', p.5

		<i>and lists of associated flora and fauna species)”</i>
Phase 2 Habitat Survey ⁴⁷	July 2001	<p><i>“23 localities were identified as being representative of the major habitats and their regional variation” of:</i></p> <p><i>“...detailed ecological descriptions of the main habitats along the route</i></p> <p><i>regional variations in these habitats;</i></p> <p><i>...any significant differences between these habitats and similar ones found elsewhere in Turkey;</i></p> <p><i>...their biological diversity;</i></p> <p><i>...whether these habitats are inviolate.”</i></p>
Further Phase 2 Habitat Surveys ⁴⁸	Summer 2002	Surveys of areas affected by re-routes (ie not examined in previous studies)

The majority of the route was thus not surveyed by BTC. Instead, the survey teams selected out of the vastness and diversity of Turkey’s “unsurveyed” ecosystem a mere 23 sites supposedly “representative” of the whole region. Thus the project adopted an approach of quick approximation: noting the general types of habitats, then looking at some examples of these, assuming those to be representative.

It is very difficult to see how, for a country as biodiverse yet under-surveyed as Turkey, this approach can give an adequate picture. Local experts report that it is still possible to Turkey to discover new species – thus it is almost certain that by reducing the whole 1,000 kilometres to 23 small areas of study, important species will be missed.

On some animals, extra studies were undertaken. However, for mammals (including the endangered Brown Bear), these were done without any field observations, simply by desk study.⁴⁹ For birds, a number of observation dates are listed in the impacts tables, but each habitat is recorded as surveyed only on a single day – ignoring any possible movements of the birds:

- In the Posof Wildlife Protection Area, birds were surveyed on 29/06/01⁵⁰, at Cotsuyu River, Ardahan, on 28/06/01⁵¹, at Kuru Lake, Sivas (a potential RAMSAR site), on 26/5/01,⁵² and at the Zamanti River Plateau, Kayseri, on 16/5/01.⁵³

⁴⁶ BTC EIA, Turkey, October 2002, section 5.7.1.1 – ‘Phase 1 Habitat Survey’

⁴⁷ BTC EIA, Turkey, October 2002, section 5.7.1.2 – ‘Phase 2 Habitat Survey’

⁴⁸ BTC EIA, Turkey, October 2002, section 5.7.1.2 – ‘Phase 2 Habitat Survey’

⁴⁹ BTC EIA, Turkey, October 2002, section 5.7.1.3 – ‘Other Surveys’

⁵⁰ BTC EIA, Turkey, October 2002, volume II, supplement I – ‘Environmental and social impact tables’, p.6-9

⁵¹ BTC EIA, Turkey, October 2002, volume II, supplement I – ‘Environmental and social impact tables’, p.6-72

⁵² BTC EIA, Turkey, October 2002, volume II, supplement I – ‘Environmental and social impact tables’, p.6-518

⁵³ BTC EIA, Turkey, October 2002, volume II, supplement I – ‘Environmental and social impact tables’, p.6-608

- It appears the Alacorak and Ulas Lakes, Sivas (a potential RAMSAR site) was only surveyed at all on one day, as the EIA somewhat vaguely states that “The three small lakes appear to be permanently wet, while the largest lake is at best seasonal having been dry for a long time at the point of survey on 22.05.2001”.⁵⁴

BP has refused to make these studies available outside of BOTAS’ office in Ankara: for those who are unable to travel to BOTAS’s office, it is impossible to assess them fully.

The EIA admits that:

“it is acknowledged that additional data collection (through site-specific surveys, analysis of monitoring records, etc) will be required as an ongoing activity throughout the project life cycle”,

although it claims that

“the collection and evaluation of baseline data is sufficiently robust to enable significant environment and social impacts to be predicted”⁵⁵

This latter claim is not substantiated.

6.6.3.3 Failure to examine species during different seasons

The importance of examining habitats in more than one season is emphasised by the World Bank:

“The Task Manager and implementing agency should allocate sufficient time to account for seasonal variations or longer-term trends. ... Many projects have long lead times, and if ecological impacts are judged important (from screening), then in “data-poor” situations work can begin early enough to collect information for the main seasons. Likewise, detailed sampling may be required to assess the variability of inherently diverse and patchy habitats such as coral reefs. This variability may be critical for the overall sustainability of the affected area, especially for rare or endangered species.”⁵⁶

Yet not only was the flora and fauna survey completely inadequate to capture the whole route, even those areas it looked at were covered only once, in the summer, in the month of July (see table above). Again, it is very difficult to see how this could give any degree of realistic picture of the flora and fauna present.

6.6.4 Insufficient Analysis of Species

Relevant paragraph and law requirement	Specific obligations	Evaluation of compliance	Extent of compliance
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⁵⁴ BTC EIA, Turkey, October 2002, volume II, supplement I – ‘Environmental and social impact tables’, p.6-555

⁵⁵ BTC EIA, Turkey, October 2002, section 5.1.1.1 – ‘The baseline - Objectives’

⁵⁶ World Bank, Environmental Assessment Sourcebook, Update no. 20, October 1997, ‘Biodiversity and environmental assessment’, p.5

key requirement			
World Bank, Environmental Assessment Sourcebook, Update no. 20, October 1997, 'Biodiversity and environmental assessment', p.1	<i>"The functions and services of natural habitats and ecosystems should be systematically assessed and evaluated, and the ecological, social, and economic value of such functions quantified as part of the cost/benefit analysis of programs and projects."</i>	1. No assessment beyond mere presence of species	Non compliance

6.6.4.1 No assessment beyond mere presence of species

Various aspects of habitats and ecosystems are required by the World Bank to be assessed. The BTC EIA looks at nothing beyond the mere presence of a species – even for endangered species where data is acknowledged to be deficient, there has not been a study of population levels.

The World Bank Sourcebook states that:

*"The functions and services of natural habitats and ecosystems should be systematically assessed and evaluated, and the ecological, social, and economic value of such functions quantified as part of the cost/benefit analysis of programs and projects."*⁵⁷

The World Bank Sourcebook also requires that:

"Relevant data should be generated on:

- *The status of biodiversity and natural resources, uses and threats...*
- *Ecosystem functions and values, including extent to which environmental thresholds or critical levels are being approached"*⁵⁸

The World Bank lists the following as necessary biological aspects of a baseline study:

"Ecosystem/habitat level

- *Distribution, richness and diversity of habitats and ecosystems*
- *Patchiness, connectivity/ fragmentation of habitat(s)/ ecosystem(s); corridors; fragile habitats and ecosystems*
- *Carrying capacity and community dynamics*

⁵⁷ World Bank, Environmental Assessment Sourcebook, Update no. 20, October 1997, 'Biodiversity and environmental assessment', p.1

⁵⁸ World Bank, Environmental Assessment Sourcebook, Update no. 20, October 1997, 'Biodiversity and environmental assessment', p.5, Box 4 – 'Baseline information and its collection'

Population/species level

- *Population structure and dynamics, including harvesting pressure(s), abundance/composition of key species*
- *Existence of endemic, rare, vulnerable, and/or endangered species*⁵⁹

None of these aspects are covered in the EIA, beyond the simple presence or not of a species. Although BP has refused to make its data available for inspection, the EIA itself notes in several cases that it does not have any population data on certain species - even where it has identified them as rare species. For example, the EIA notes that the Eurasian Brown Bear, Wild Goat, Chamois and Roe Deer are endangered, but simply states “*Population estimates are unknown*”.⁶⁰ For an endangered species, one would have expected a first priority to be to assess the population levels; indeed “*abundance / rarity*” is listed as the primary criterion in determining their importance⁶¹ – yet this information is in several cases unknown to BTC. Similarly, for the Caucasian Black Grouse, a globally-threatened species, the EIA states that “*Reliable population estimates are lacking*”.⁶²

The attempt to assess the impact of the pipeline on rare species whose rarity is not known is a clear illustration of the inadequacy of the process.

6.6.5 Failure to present original data

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
OP 4.01, Annex B clause d)	<i>“Unpublished documents used in the assessment may not be readily available and should also be assembled in an appendix”</i>	1. Original data not presented in EIA, and withheld when inspection requested	Non compliance

6.6.5.1 Original data not presented in EIA, and withheld when inspection requested

BTC directly breaches World Bank recommendations by not publishing original data in the EIA, and has actually refused to supply it when requested.

⁵⁹ World Bank, Environmental Assessment Sourcebook, Update no. 20, October 1997, ‘Biodiversity and environmental assessment’, p.5, Box 4 – ‘Baseline information and its collection’

⁶⁰ BTC EIA, Turkey, October 2002, section 5.7.2.4 – ‘Erzincan region’

⁶¹ BTC EIA, Turkey, October 2002, section 5.7.1.2 – ‘Phase 2 Habitat Survey’

⁶² BTC EIA, Turkey, October 2002, section 5.7.3 – ‘Other important conservation sites’

However, the EIA does not include detailed or original data. The character of the biological baseline in the EIA rather just picks out certain species considered important. BP has twice refused to make available documents referred to in the EIA.

6.6.6 Accuracy, reliability, methodology and gaps not indicated

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
OP 4.01, Annex B	<i>“indicate the accuracy, reliability, and sources of the data.”</i>	1. No assessment of accuracy and reliability of sources in data	Non compliance

6.6.6.1 No assessment of accuracy and reliability of sources in data

IFC standards require that the Environmental Assessment:

*“indicates the accuracy, reliability, and sources of the data.”*⁶³

There is no assessment of accuracy or reliability, and sources are mostly not declared (data are simply marked as acquired by “desk study”).

The World Bank Sourcebook specifies that:

*“Sources of information should be included and, where primary data have been collected, methods of sampling, measurement, and analyses should be briefly outlined.”*⁶⁴

The BTC EIA mostly does not give details of methodology. Two mentions of it cross-refer to each other for further details, neither in fact giving them.⁶⁵

Only for one part of the biological baseline study (the Phase 2 Habitats Survey) is any methodological information given, and even then it is partial and incomplete – it does not specify, for example, the size of quadrats, nor the range of experts employed to assess different types of flora and fauna.

⁶³ International Finance Corporation, OP 4.01, Environmental Assessment, Annex B – ‘Content of an Environmental Assessment Report for a Category A Project’, clause d)

⁶⁴ World Bank, Environmental Assessment Sourcebook, Update no. 20, October 1997, ‘Biodiversity and environmental assessment’, p.6

⁶⁵ In the introduction of the baseline chapter, under the heading ‘Methodology’, the EIA states: A detailed outline of the methodology and assessment methods adopted for environmental and socio-economic baseline data collection is provided in Section 3 [BTC EIA, Turkey, October 2002, section 5.1.1.2 – ‘The baseline – Methodology’]. Section 3, the chapter on methodology generally, states under the heading ‘Baseline data collection’ that: *The methods used for baseline data collection for each environmental aspect are described in the respective ‘baseline’ sections (Sections 5, 10 and 11)* [BTC EIA, Turkey, October 2002, section 3.6 – ‘Approach and methodology - Baseline data collection’]

6.6.7 Failure to Assess Sustainability of Project

Relevant paragraph and key requirement	Specific obligations	Evaluation of compliance	Extent of compliance
OP 4.01, para 1	<i>IFC requires environmental assessment (EA) of projects proposed for IFC financing to help ensure that they are environmentally sound and sustainable”</i>	1. No assessment of sustainability of project or its contribution to sustainable development	Non compliance

6.6.7.1 No assessment of sustainability of project or its contribution to sustainable development

IFC Operational Policy OP 4.01 states that:

“IFC requires environmental assessment (EA) of projects proposed for IFC financing to help ensure that they are environmentally sound and sustainable”⁶⁶

The meaning of this is explained in relation to a similar wording of the corresponding World Bank policy:

“The World Bank’s OD on environmental assessment states that sustainability is a requirement that Bank projects must meet. ‘The purpose of EA is to ensure that the development options under consideration are environmentally sound and sustainable’ ... Note that this language does not treat sustainability as one value to be traded off against others in an economic analysis. Rather it states that the “development options under consideration”, i.e., all the options to be compared must be sustainable, so whatever is not sustainable is not even to be included among the options to be ranked economically.”⁶⁷

The World Bank’s Environmental Assessment Sourcebook goes on to define what is meant by sustainability, as required in the Operational Policy, in the case of non-renewable inputs (oil, in the case of BTC):

“The rule is to deplete at a rate equal to the rate of development of renewable substitutes. Thus extractive projects based on non-renewable must be paired with a project that develops the renewable substitute. Net receipts of nonrenewable exploitation are divided into two components (income and a capital set-aside) such that the capital set-aside, when invested in a renewable substitute each year will, by the time the nonrenewable is depleted, have grown to a stock size whose

⁶⁶ International Finance Corporation, OP 4.01, Environmental Assessment, paragraph 1

⁶⁷ World Bank, Environmental Assessment Sourcebook, Chapter 1, Annex1-5, paragraph 1

*sustainable yield is equal to the income component that was being consumed all along.*⁶⁸

No consideration is given to this in the EIA.

⁶⁸ World Bank, Environmental Assessment Sourcebook, Chapter 1, Annex1-5, paragraph 8 (b)

6.7 International best practice with regard to pipeline projects in seismic areas

As part of the current compliance review, a comment on the EIA's treatment of seismic risks was commissioned from geological consultant TH Fairs, who works as a consultant within the petroleum industry.

His assessment is reproduced below:

Assessment of BTC EIA Report with specific regard to Earthquakes

T H Fairs (Independent Geological Consultant, Fellow Geol. Soc. of London and Petroleum Exploration Soc. of GB)

20 August 2003

The following assessment was carried out at the request of Greg Muttitt on behalf of PLATFORM, for an independent review of the BTC EIA report, with specific regard to the issue of environmental risks associated with earthquakes across the Turkish section of the BTC pipeline.

To give some background of my qualifications and previous experience, I am an independent consultant geologist with over 22 years working in the international petroleum industry. Although I have spent most of my time in the upstream part of the oil business, nevertheless I have had many years experience working closely with teams that were planning production and pipeline facilities in different parts of the world. This, I believe, places me in a very good position to comment on geological issues and their impact on oil industry activity, such as the routing of an oil pipeline. I have attempted throughout to keep to my remit of giving an impartial opinion of the BTC EIA report, and offering my professional advice in terms of recommendations for further investigation.

I have also as part of this assessment made requests and recommendations for further information or data, as the aforementioned report does not furnish all the information/ data that I needed to make a well-informed judgement of the issues surrounding the BTC pipeline.

The following assessment is broken up into four (4) sections based on issues that I identified with respect to the seismic monitoring, geohazard work, fault investigation programme and environmental risk assessment.

1) Seismic Monitoring: From a detailed examination of relevant sections of the BTC EIA report, with respect to monitoring of seismic activity along the Turkish section of the pipeline route, I was unable to find any information about current seismic monitoring, or for the planned provision of such for the future. I would have expected it a minimum requirement (and to comply with the standards in the World Bank Environmental Assessment Sourcebook) for the building of this pipeline through a seismically active region that monitoring stations were established along its route. I am aware that the Turkish government authorities have established a minimal amount of seismic monitoring stations through the country, but the risks involved with this pipeline should necessitate the establishment of further facilities along the route.

I recommend that details of the current and future facilities should be supplied in the EIA, along with an explanation of how these relate to earthquake risk and the capability to predict seismic activity.

2) Geohazard Work: In Volume 2 Section 5.1.1.1. And 5.1.1.2 (Baseline Objectives) of the EIA, it is acknowledged that further work has to be carried out with specific respect to data collection (pp.5-49), but there are no details given as to what is planned for the future. These conclusions are (presumably) based on the findings of an investigation of geohazards that was carried out in May 2001 by an independent audit team, who were not identified in this part of the report. As neither the data from this report are given, nor the conclusions made, it is impossible to verify or validate the comments made as to the need for further work. Nevertheless, the fact that the report admits that further work is required is suggestive that the initial work was not detailed enough for meaningful conclusions.

I recommend that the report(s) of the independent geohazard audit team be made available, so that their data and findings can be scrutinised, along with details of future geohazard work (such as its nature, timing, location etc.). In addition, it would be very useful to know how this future planned work impacts the current understanding of geohazards with respect to the EIA.

3) Fault Investigation Programme: In Volume 2 Section 5.5.1.2 (pp.5-55) from the findings of a fault investigation programme

(Oct.2001), it is stated that for relatively large movements occurring at depth along the faults responsible for the recent earthquakes (Erzincan 1992, Adana-Ceyhan 1998), no ruptures are observed at the surface. This statement raises an important question regarding the methodology of investigation and measurement of fault presence, relative displacement and activity carried out for this EIA. As no precise information is clearly apparent in the EIA as to the techniques of investigation of this programme, then one must assume that the presence of faults are based on more than surface expression, such as deep seismic surveys. Having said this, the report only shows aerial/ satellite images indicating surface expression of the major faults. But if these conclusions are made from surface expression alone, then one can deduce that there are more faults at depth, which can only be detected by seismic surveying?

This (somewhat confusing) situation clearly highlights the need for more information to be supplied in the EIA regarding the methodology of the fault investigation programme, as it is unclear what type of investigative work was carried out. In addition, this situation adds strength to the argument in 1) above, that the need for seismic monitoring and surveying is vital in this region, as to the prediction of potential earthquake locations.

4) Environmental Risk Assessment: In Volume 2 Section 8 (pp.8-6 to 8-9) there is a discussion of the determination of probable frequencies of spill events with regard to environmental risk assessment. The question is raised of where in the world is there another pipeline of this magnitude crossing a seismically active region, and what steps were taken to mitigate risks of spill events. It is argued that quantitative historical data is required to develop a spill frequency benchmark, and that for this EIA, direct reference is made to pipeline failure leakage data compiled for 30 years performance statistics by CONCAWE (report 1/02). This would seem reasonable as CONCAWE are an oil industry body

researching and assembling data on natural hazards affecting oil and gas pipelines, except that their database is confined to Western Europe, where firstly there are no active seismic regions where pipelines traverse, and secondly this report lacks any data from Turkey. These two facts alone raise an important question about how relevant these data are as a benchmark for the BTC pipeline, and why no other alternative data source was consulted. In the BTC EIA Table 8.1 shows that natural hazards (earthquakes) represent a small percentage (4%) of total spill events, but this is clearly not relevant to the situation in Turkey. It is even stated “As the CONCAWE data is derived from Western European experience, some of it is not fully representative of the hazards and experience in other geographical settings...and requires judicious adjustments of the data “

For an environment risk assessment of a project of this magnitude with its enormous consequential repercussions, I find this approach inadequate.

In conclusion, I find the BTC EIA lacking in data to substantiate the conclusions made therein, and as a first step, I would recommend and request that the original data be made available so that I (and others) can make a more well informed judgement. Having said this, it would appear that there are significant omissions in the approach of this assessment that I would consider fundamental to industry convention and practice. Here I am referring to the seismic surveying of the pipeline route, along with the establishment of seismic monitoring facilities. The database used for the environmental risk assessment is clearly not relevant to the project, and should be readdressed.”