

**PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE**

Report No.: AB3679

Project Name	ARP/ III-Large Scale Oil Polluted Land Clean up
Region	EUROPE AND CENTRAL ASIA
Sector	Oil and gas (100%)
Project ID	P110682
Borrower(s)	GOVERNMENT OF AZERBAIJAN
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Implementing Agency	
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Environment Category	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	May 19, 2008
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Date of Board Approval	June 17, 2008

Country and Sector Background

1. The Government of Azerbaijan has invited the World Bank to help implement the Environmental State Program (ESP), an ambitious response to the **environmental challenges facing the Absheron Peninsula on which the capital city of Baku is located**—tackling critical environmental risks while liberating land needed for the rapid economic and demographic growth of this essential urban area. Key development issues include the following:

- *Serious environmental degradation:* The Absheron peninsula is seriously polluted due to nearly 150 years of oil production that has contaminated some 30,000 hectares, 15,000 of which are heavily polluted and of primary environmental concern. In these areas, hydrocarbons have seeped into soil and rock extending to a depth of several meters. This issue is exacerbated by the existence of hundreds of continuing production facilities such as drill rigs and oil pumps that constitute a continuing pollution source. Oil production on the peninsula has also affected the Caspian Sea through the discharge of contaminated water; and generated radioactive waste (from natural radio-nuclides). Finally, rapid urban growth and weak management capacity have caused sanitation and solid waste management to deteriorate significantly.

- *Rapid urban growth and resulting demand for land:* Recently many people have migrated to the Absheron Peninsula and its two main cities, Baku and Sumgayit, in search of jobs and opportunities. This rapidly increasing population and the economic revival have created a strong demand for land. Baku is ringed by former oil fields and other polluted sites; urban growth has leapfrogged over these areas and extended literally across the Absheron Peninsula, often with little access to basic infrastructure. Informal settlements are growing in heavily polluted areas, creating a serious health risk. Meanwhile, contaminated land located close to rapidly growing residential and commercial areas has high potential value for redevelopment if it were cleaned up.
- *Need for effective land management:* A comprehensive approach to regional planning, development and capital investments for Greater Baku is needed. The most recent General Plan, developed in the mid-1970s, covers only a small portion of the current urbanized area and excludes many areas with new settlements that have developed during the past 15 years. Little up-to-date information exists on ownership and/or land use for the Absheron Peninsula. Cleaning up and converting polluted land requires a systematic approach that prioritizes sites for rehabilitation, and the feasibility and cost of rehabilitating a site should be related to its future use.

2. The **Environment State Program (ESP)** instituted by Presidential Decree No. 1697 of September 28, 2006 forms the basis of the proactive response by the Government to these challenges. It details 65 activities and 30 governmental or public stakeholders. It is a comprehensive plan tackling clean up/remediation, hazardous and non-hazardous waste, and forward-looking environmental management through renovating facilities and improving laws and regulations. The Decree makes the Cabinet of Ministers responsible for overall coordination and supervision, and demonstrates high-level commitment that has motivated key ministries and agencies.

Objectives

3. The project development objective (PDO) is to improve (i) SOCAR's capacity and effectiveness in environmental management and in cleaning up of oil-polluted land in the Absheron Peninsula, and (ii) the quality of soil conditions in oil-polluted lands cleaned up under the project.

4. The key indicators to be used to assess progress in achieving the PDO are: (a) improvement in SOCAR's environmental management processes as evidenced by the implementation and execution of SOCAR's obligations under the ESP; (b) improved capacity and efficiency in cleaning up oil-polluted land in the Absheron Peninsular, evidenced by increase in SOCAR's annual rates and volumes of soil cleaned to internationally acceptable standards and (c) improved quality of land as evidenced by the percentage of land rendered sustainable for productive re-use.

Higher level objectives to which the project contributes

5. *Country Assistance Strategy.* The proposed Project is part of the **Absheron Rehabilitation Program (ARP)**, a programmatic series of SILs that respond to the Government

of Azerbaijan's request for World Bank support for the ESP. The ARP supports two pillars of the 2006-10 Country Partnership Strategy: (a) improve environmental management and conditions and (b) support sustainable and balanced growth of the non-oil economy. It amplifies the assistance started under the US\$20 million Urgent Environmental Investment Project closed in 2005, which included mercury cleanup and onshore oil field cleanup on the Absheron Peninsula.

6. On a systemic level, the project will contribute to the development and mainstreaming of a functioning framework of standards and guidelines and practical regulatory implementation and oversight capacities and experience. It will also assist SOCAR benchmark against international standards its environmental regulatory policies and practices, past and current production practices, workers health and safety, and alignment with land management and land use master plans.

7. The project aims to clean up approximately 2,000 ha¹ of the heavily polluted 8,200 ha of land under SOCAR's direct jurisdiction, over about a 5-year period. It is clear that additional equipment beyond the project will be needed to clean up the remaining portion of the polluted land; SOCAR has allocated US\$600 million for this purpose and has estimated that it will take an additional 10-12 years to clean and remediate all the polluted land under its jurisdiction. Currently, there is no estimate of the time it will take to clean up land not under SOCAR, this includes land leased by contractors.

Rationale for Bank Involvement

Rationale for Bank support for the ESP

8. The Bank has been in dialogue with the Government of Azerbaijan (GoA) on environmental clean-up activities for some years and supported a project with a pilot oil pollution cleanup component under the Urgent Environmental Investment Program (UEIP, closed 2005) to develop and test suitable cleanup technologies. The World Bank agreed with the GoA to incorporate environmental management and climate change issues as one of four pillars in the CPS for FY07-FY10. The World Bank has thus agreed to partner with the Government in supporting the ESP through the Absheron Rehabilitation Program (ARP), a programmatic series of projects and advisory services.

Specific Rationale for Bank involvement in the Project.

9. Under the ESP, the Cabinet of Ministers designated SOCAR as the implementing agency with the primary responsibility of cleaning up 8,200 hectares of heavily oil-polluted land directly under SOCAR's control, and another 7,000 hectares which are leased to contractors. The estimated total area for long-term cleanup operations on Absheron is around 30,000 ha. Although SOCAR plans to allocate more than US\$600 million for ESP activities from 2006-10, and has created a dedicated joint-venture (EKOL, 51%-owned by SOCAR), it is still at the early stages of carrying out its ambitious clean up plans. Remediation activities of significant scale on selected sites have started, but they involve mainly low-tech solutions, and there is scope for

¹ For the financial analysis of the project minimum land clean-up a conservative estimate of 1000 ha has been used

strengthening design, cleanup goals, standards, works organization, and construction management. Problems to date have included incomplete decontamination, spread of contaminated material by improper handling, and poor practices in workplace health and safety. The project will provide an opportunity to introduce modern cleanup technology and equipment suited to larger-scale operations; improved operations planning and management; as well as to clarify the regulatory framework and post-cleanup land planning

Description

This project is the initial step in a potential long-term program of cooperation with SOCAR in developing and implementing its environmental agenda. It will be achieved through two components:

COMPONENT A: LARGE SCALE OIL CONTAMINATED LAND CLEAN-UP: PROCUREMENT AND OPERATION OF SOIL WASHING PLANT (Total Cost is US\$166.02 million including VAT, of which US\$53.44 million from IBRD)

1. This component will finance the purchase of multiple semi-mobile soil washing equipment and provide technical assistance to SOCAR with the goal of cleaning up approximately 1,000 - 2,000²ha of oil-polluted land. The core objective and activity planned under this component is to remove hydrocarbons and potentially associated accessory pollutants (e.g., PAH,³ Phenols) by washing and / or scrubbing with hot water, steam and / or additive detergents and chemical agents. Suitable alternative cleanup technologies will be employed where soil washing is unsuitable or uneconomic. They may include land farming, off-site bio-remediation in heaps, and separate removal and direct use of heavy bitumen fractions and mazut, e.g., as additive for asphalt production or alternative fuel in the cement industry. Potential auxiliary activities include removing garbage and scrap metal, demolishing derelict installations, and fencing and securing sites against unauthorized access.

2. **A1: Stationary and Semi-mobile Soil Washing Plant:** Soil washing first detaches mineral solid soil components from hydrocarbons, by the mechanical and chemical action of a washing liquid. Soil fractions which leave the plant as cleaned soil, typically with minor hydrocarbon concentrations, process byproducts include process water, which is recycled and reused continuously, and a concentrate of stripped off hydrocarbons, which contain varying amounts of fine soil fractions (fine silt and clay). The reclaimed product will be degraded hydrocarbons, which is estimated to have about 10% of crude oil value but still is an economically valuable product and will be used for example for producing heavy fuels, or lubricants as alternative fuel, or an ingredient for bituminous asphalt.

3. **A2: Auxiliary equipment** needed with the soil washers described above include water treatment plants, steam generators, oil phase separators (decanters), thermal recycling units (for utilizing mazut to provide heat for steam generation), cylindrical sorting screens and scrap and refuse separators (details are in Annex 4).

² For the project financial analysis the lower number has been used

³ Polycyclic Aromatic Hydrocarbons

4. **A3: Operational costs** include energy, water, consumables, civil works, transport services and labor and are estimated to about US\$18 million per year, or roughly US\$90 million for the project lifetime (US\$102.96 million including VAT), borne entirely by SOCAR.

5. **A4: Technical Support and Assistance:** TA will be provided with the clean-up equipment to support optimized, efficient, and sustainable operation throughout the project lifetime (and beyond) and firmly embed skills and capacities for plant operation and cleanup management in SOCAR's environmental department. To ensure best advice to SOCAR an independent Consultant not connected to the plant supplier will be hired for this subcomponent providing assistance with plant procurement, development of sector-specific environmental standards and clean-up methodologies, and criteria to select and optimize cleanup methods.

6. Additional TA will be provided via a technical cooperation agreement between SOCAR and the Norwegian Oil Producer "STATOIL", which will include a series of workshops and training activities to improve environmental monitoring and analytical quality, to analyze current corporate environmental performance and scope a road map for further joint activities and information transfer.

COMPONENT B: INDEPENDENT MONITORING, COMMUNICATION AND PUBLIC OUTREACH, AND PROJECT MANAGEMENT (Total Cost is US\$1.50 million including VAT, out of which US\$0.94 million from IBRD)

7. The objective of this component is to provide independent monitoring and supervision to the operation, promote public awareness and stimulate an informed public debate on the environmental challenges facing SOCAR, and cover costs of training for project management.

8. **B1: Panel of Experts:** For diligent monitoring and supervision, a Panel of Experts (PoE) will be established as independent advisory body to provide high-level, independent technical oversight and advice.

9. **B2: Monitoring and evaluation:** Within SOCAR's environmental department an M&E unit exists and will be strengthened by the project. The main responsibilities of the M&E group would be the development of a monitoring system which, starting from the clean-up project activities, captures improvements in corporate environmental performance.

10. **B3: Communication and Outreach to Public:** The bulk of this activity will be carried out by SOCAR staff trained and experienced in communication and public relations. Targeted advisory services by experienced international and local communication specialists and training will be financed by the project.

11. **B4: PMT operating and training costs.** The loan will finance an annual independent financial audit and training activities for PMT staff. Other PMT operational costs will be borne entirely by SOCAR.

Financing

Source:		(\$m.)
Borrower		124
International Bank for Reconstruction and Development		60
	Total	184

Implementation

A. Partnership arrangements

10. Under auspices of the “Petroleum and Governance Initiative” (PGI), implemented jointly by the Bank and the Norwegian Agency for Development Cooperation (NORAD), a multi-country survey on a range of indicators including environmental indicators has been initiated (inception phase of Consultancy contract commenced) and includes Azerbaijan. The Bank project team and SOCAR will cooperate to disseminate information and share results. In addition, SOCAR’s management is in talks with the Norwegian Statoil regarding TA for environmental issues. This will include a series of workshops and training activities to improve environmental monitoring and analytical quality, to analyze current corporate environmental performance and scope a road map for further joint activities and information transfer.

B. Institutional and implementation arrangements

11. Over the past few years, SOCAR has carried out cleanup activities on at least two heavily pollutes sites. In the course of project preparation, SOCAR has established a project management team (PMT). Core positions (e.g., Director, FM specialist, procurement specialist, technical remediation specialist and communication specialist) are already staffed. Technical support to the PMT is provided by a working group with a staff profile of mainly engineers with strong technical capacity already demonstrated during other pilot cleanup operations and the preparation of ARP III project. During project preparation, the working group addressed the following tasks: (a) data procurement, preparation of environmental assessment, (b) development of technical specifications for cleaning equipment, (c) site investigations and field-testing, (d) administration/coordination, management of domestic and international consultancy contracts.

12. A Panel of Experts (PoE) will be established as independent advisory body after loan effectiveness, comprising Azeri and international members with long-term experience in oil production, management, governance of oil firms and environmental, social, and regulatory experience.

13. A Deputy Prime Minister is responsible for overseeing implementation of the overall ESP. He is the head of the Steering Committee established before negotiations to enhance coordination among all agencies responsible for implementing ESP activities financed by the World Bank. SOCAR PMT will report to the SOCAR Vice President for Environment and to the Steering Committee on the status of project scheduling and achievement of milestones set out by the ESP.

Sustainability

14. *Ownership.* The Environmental State program (ESP) provides an overall framework for clean-up activities in the Absheron Peninsula, and it enjoys strong government support. SOCAR is both involved as key stakeholder in the ESP and in addition committed to the implementation of the ESP through its own environmental program, "Working Program for implementation of SOCAR related projects under the State Program on Improving the Environmental Situation in Azerbaijan for 2006-2010", approved by resolution of the President of SOCAR on December 7, 2006.

15. Before the ESP, SOCAR had begun to engage in polluted land cleanup in the early 2000s, at the time of the UEIP. After closure of that project, SOCAR has continued to operate the Binagadi soil washing plant and to undertake recent remediation activities at Bibi Heybat. SOCAR cleanup activities now have momentum and close attention and support from top management.

16. *Financial Sustainability.* Demand for clean land in the Absheron Peninsula is growing rapidly, both new construction and other economic uses. Moreover, preliminary economic analysis based on technical parameters described in the Feasibility Study for ARP III predicted a high rate of return on cleanup operations from the recovery of marketable hydrocarbons (similar in type to 'heavy crude'), and the value of reclaimed land for development, which should produce a fairly rapid return to investment and create long-term economic sustainability. Furthermore, these outcomes provide a strong financial incentive for SOCAR to apply acquired capacity to maximize output, and use it wherever it is technically and financially relevant.

17. *Institutional Sustainability.* Sustainability requires a regulatory framework and institutional capacity to oversee and manage environmental due diligence. In the context of land cleanup, existing regulations are deficient and technical capacity and experience is still limited. Addressing these issues requires a proper balance between creating standards that are neither too stringent nor unaffordable, or too loose leaving residual contaminations - as either scenario would not be environmentally sustainable over the long term. Project design will respond to these issues through the following: (a) embedding the PMT in SOCAR's ecology department and subsidiary EKOL, and (b) providing TA to improve corporate environmental performance and practice, (establish TA to strengthen regulatory functions, establish workable land-cleanup standards, and build technical capacity for enforcement (e.g. by understanding risk-based standards and project design).

Lessons Learned from Past Operations in the Country/Sector

18. *The foremost key lesson is the necessity for strong Government ownership and willingness to lead this kind of operation, without which a project of significant scale and sustainability is not possible.* GoA's commitment is evidenced by the decree establishing the ESP and the designation of the Deputy Prime Minister to oversee its implementation and coordination. SOCAR's commitment is evident from the ongoing significant cleanup activities, and also the establishment of a new Environment Vice Presidency. The Bank task team has engaged in an active and constructive dialogue with SOCAR management and technical staff, the results of which were duly considered in project design and preparation.

19. The Bank has experience in the sector and with oil spill cleanup on Absheron peninsula from the Urgent Environmental Investment Program (UEIP, P055155, completed 2005), which included a component to pilot cleanup activities on oil-polluted soil. SOCAR was responsible for the implementation of this component, which provided a comprehensive demonstration of site cleanup technologies, tested technical approaches, and provided a basis for cost estimates and for assessing remediation requirements on other sites. Cleanup equipment and infrastructure (pilot scale, capacity ca. 150 m³/day) became the property of SOCAR at the end of the project and are still operating today (at Binagadi oil field).

20. SOCAR and the government used UEIP lessons as a model for preparing their project cleanup strategy; MENR and other key stakeholders provided comments on earlier versions, which were incorporated in the strategy eventually ratified by the Cabinet of Ministers. UEIP was also a catalyst in establishing EKOL and strengthening the SOCAR environmental department. Among the critical lessons learned from UEIP are the following: (a) Extensive cleanup projects require sustainable institutional structures; participation of Azeri regulatory institutions, and clear regulation and enforcement of land ownership and land use planning. (b) Capacity building is needed not only for technical skills but also for managerial development; and (c) technical assistance can only be useful when Government and implementing agencies recognize its importance. This is the case with SOCAR, which is interested in to develop its own technical capacity through exposure to international experience.

17. Looking to the future, the project will also benefit from analytical work of the “Petroleum and Governance Initiative” (PGI), a joint undertaking of the World Bank and the Norwegian Agency for Development Cooperation (NORAD). The PGI has three pillars: Governance, Environment, and Community Development. It aims to evaluate the degree to which countries with upstream oil and gas industries are adopting international environmental good practices; and which elements of environmental management systems (EMS) are priorities for technical assistance programs. Among other outcomes, PGI recommendations will guide Bank assistance with legal, regulatory, contractual, and institutional issues and calibrate future action plans.

Safeguard Policies (including public consultation)

21. In view of its Category B classification, the project triggers Environmental Assessment (OP 4.01) Safeguard Policy. It will involve the use of large-capacity equipment, and cleanup activities will require large-scale civil works (excavations, backfilling), transport, construction of temporary roads and infrastructure, and will generate waste, wastewater, and emissions, but all negative impacts are expected to be temporary, reversible, and restricted to already-polluted areas. No resettlement activities will take place as a result of the project. In this context, it should be born in mind that the equipment supplied and operated under the project is geared specifically to the highest range of contaminations, where soils are saturated or covered with bituminous crusts or free oil phase is stored in ponds and puddles. The contamination levels in these areas have so far proven prohibitive to any settlement and land use. There are squatters in areas adjacent to these highly contaminated lands and/or in areas with lesser contaminations. Decontamination operations can be executed in a precise manner with only minor impacts on such occupied areas during cleanup operations.

Safeguard Policies Triggered by the Project	Yes	No
<u>Environmental Assessment (OP/BP 4.01)</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Habitats (<u>OP/BP 4.04</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pest Management (<u>OP 4.09</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Physical Cultural Resources (<u>OP/BP 4.11</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Involuntary Resettlement (<u>OP/BP 4.12</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Indigenous Peoples (<u>OP/BP 4.10</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Forests (<u>OP/BP 4.36</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Safety of Dams (<u>OP/BP 4.37</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects in Disputed Areas (<u>OP/BP 7.60</u>)*	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects on International Waterways (<u>OP/BP 7.50</u>)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

List of Factual Technical Documents

1. SOCAR Feasibility Study (Development of Clean-up Strategies and Procurement of Plant and Equipment for the Remediation of Oil-polluted Land, Absheron Peninsula, Azerbaijan, 21. Jan. 2008)
2. Environmental Management Framework (EMF)
3. Environmental Management Plan (EMP)
4. Draft Operational Plan

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* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

