

**СЕКЦІЯ 6 ЕКОНОМІКА ПРИРОДОКОРИСТУВАННЯ ТА
СУЧАСНІ ПРОБЛЕМИ ОХОРОНИ НАВКОЛИШНЬОГО
СЕРЕДОВИЩА**

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**MANAGEMENT OF ECOLOGICAL RISKS WHILE
DEVELOPING ONSHORE OIL FIELD OF AZERBAIJAN**

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Oil and oil products contribute significantly to the pollution of environment in oil-bearing regions. The exploration of hydrocarbon deposits, as well as extraction, transportation, storage, and use of oil and gas causes pollution of the environment with hazardous substances. Crude oil includes hydrocarbons such as alkanes, cycloalkanes, unsaturated aliphatic hydrocarbons, and aromatic hydrocarbons, as well as heterocyclic compounds containing nitrogen, oxygen and sulfur, metals, and natural radionuclides.

Production of oil by industrial means has almost 150 years of history in Absheron Peninsula of Azerbaijan Republic. Total amount of produced oil within this period exceeds 1 billion tonnes. Use of primitive technologies in production, storage, transportation and refinery of oil in the late XIX and early XX centuries and importance of oil production to environmental safety in former Soviet Union caused pollution of Absheron Peninsula lands with oil and dirty water. Besides the lands, many lakes and small ponds also have been polluted with dirty water produced from oil wells and drilling fluids, and have become “dead” areas. At the same time, oil storage pits made from earth nearby oil wells are still full with oil and formation water up to day [1].

Today, the pressure on the environment in the peninsula is increasing continuously due to the ever-increasing population, plus industrial and urban growth. Therefore, one of the high priorities for the area if the Baku city is the conduction of remediation works on “inherited” oil fields polluted as a result of production, refinery, storage and transportation of oil and natural gas in Soviet period.

The analysis conducted in the paper has identified that currently the management of the ecological risks associated with the oil production in the Absheron peninsula is being implemented in two main directions:

- 1) improvement of the environmental situation in the peninsula polluted by the historical production in the area;
- 2) avoiding the potential ecological risks related to development of new onshore fields.

The authors of [2,3] indicate that there are high concentrations of contaminants in soil and water systems of the Absheron peninsula. Sometimes, the degree of oil contamination in soil varies from 20 to 30% and more. A large part of the peninsula is occupied by destroyed oil-polluted and bituminous lands. Contaminants accumulated in soils migrate into lakes, reservoirs, surface, and groundwaters throughout the site. Migration of pollutants into deep sections of soil and groundwaters causes serious danger to both local and regional viewpoints.

By the decree of the President of Azerbaijan Republic on September 28, 2006 to improve environmental situation in Absheron Peninsula [4], a decision was made to prepare and implement State Ecological Programme (SEP) which covers complex measures. Most part of the programme was about cleaning and remediation of oil polluted lands of Absheron Peninsula. Programme implementation involved participation of State Oil Company of Azerbaijan Republic (SOCAR) and various other ministries.

According to the decree, SOCAR management has worked out a Plan of Actions to improve environmental situation in and around oil and gas fields. The plan included concrete organizational, technological and economic actions to improve environmental situation of air, land and water environments. The plan also contained cleanup of oil polluted soils, and this mission was assigned to the newly established Ecological Department (ED) within the SOCAR.

Oil and gas development activities are growing in the country. The government and SOCAR have now a solid understanding of how exploration and production (E&P) on newly introduced fields may affect the environment. They understand that the activities should ideally be complementary to achieve the most cost-effective and environmentally sound approach. It is now generally acknowledged that this approach should:

- systematically integrate environmental issues into business decisions through use of formal management systems;
- integrate health, safety and environment management into a single programme;
- consider all environmental components (air, water, soil, etc) in decision making at strategic and operational levels;
- prevent waste at its source through pollution prevention techniques and technologies and making maximum re-use of waste components, rather than installing expensive treatment for discharges;
- evaluate alternatives on cost, benefit, risks basis that includes environmental values;

Ecological risk management now is the main responsibility of the specially created committee within the Ecological Department of SOCAR. That committee is directly involved into evaluation and risk management, conducting the environmental impact assessment (EIA) process; planning process of new onshore development projects, as well as the implementation and monitoring to confirm that commitments are being met; auditing and reviewing.

The Ecological Risk Management committee plays an important role working towards improvement of risk management in future in accordance with the SOCAR strategic development plan until 2025 [5]. One of the important actions assumed for the company and the committee in the plan is dedicated to reduction of air emissions during period from 2017 to 2022. That will certainly make some input into the solving the biggest challenge of our time, which is a dual one: the need to meet rising energy demand while at the same time reducing carbon emissions [6]. The emissions-reduction side of this dual challenge will mean shifting to a lower-carbon energy system, as the world seeks to move to a pathway consistent with meeting the climate goals outlined in the Paris Agreement.

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ОЦІНЮВАННЯ ЕФЕКТИВНОСТІ ПРИРОДООХОРОННИХ ІНВЕСТИЦІЙНИХ ПРОЕКТІВ

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У сучасному світі все гостріше постають екологічні проблеми, що спричинені зростаючим антропогенним впливом людини на довкілля. Одним