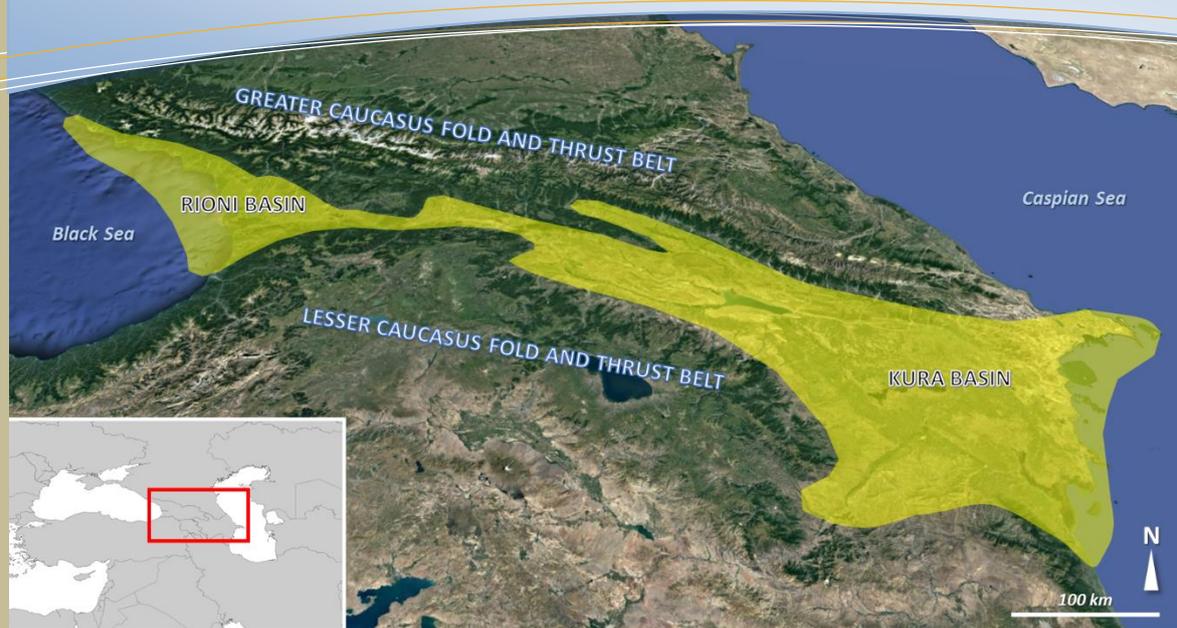


# RIONI AND KURA BASINS PETROLEUM PROSPECTIVITY (GEORGIA AND AZERBAIJAN)



The study area of this basin report extends on Transcaucasian intermontane basin, spanning from Georgia to the West to Azerbaijan to the East, a region characterised by very promising hydrocarbon potential. While Azerbaijan experienced a flourishing oil and gas history, the same cannot be told for the adjacent Georgia country, which still is an underexplored area with unexpressed potential for conventional oil and gas, shale oil and shale gas resource plays. Positive petroleum legislation and regulation, together with the expected improvement in service infrastructures feed the growing interest in further exploration of the area. Georgia and Azerbaijan are located on the Trans-Caucasian Massif, extending from the Black Sea to the Caspian Sea. These regions are 'squeezed' between two major orogenic systems: Greater Caucasus and Lesser Caucasus.

The study focuses on Rioni and Kura intermontane depressions, interpreted as foreland basins formed in Oligocene-early Miocene times, and then partially involved into the orogenic fold-and-thrust belts.

The two basins are characterised by similar sedimentary succession from Oligocene to Middle Miocene, represented by shallow marine siliciclastic sequences. The sedimentary record from Late Miocene onwards slightly diverged and, whereas Rioni basin saw mainly marine molasse deposition, Kura basin was characterised by predominant continental molasse to the west passing laterally to marine deposits.

The petroleum history in Georgia started from ancient times, but never fully developed; oil drilling began in 1869 with very low deep wells, and the maximum oil output of 3.2-3.3 tons was observed in 1980-1983. The first half of 70s and 80s was the most remarkable and successful stage in oil production history of Georgia, when Samgori-Patardzeuli-Ninotsminda, Samgori East Dome and Teleti oil fields were discovered nearby Tbilisi. After, the production started to decrease.

Azerbaijan, on the contrary, has a very ancient and thriving oil industry history dating back at 1847 with the first production of industrial oil from the dug wells in Bibieybat and later Balakhany fields. During 19th Century, Azerbaijan was by far the frontrunner in the world's oil and gas industry. More than 80 oil and gas fields, both onshore and offshore, were discovered in Azerbaijan up to 2018, and 59 are currently producing. Proved source rocks in Kura and Rioni basins are the Maikop (Oligocene-Lower Miocene), and the Upper Eocene, but also Lower Jurassic shales. Major productive reservoir rocks are the Middle Eocene fractured volcanic tuffs, Cretaceous dolomitized limestones, and Chokrakian and Upper Eocene sandstones.

To date, in Georgia, oil had been produced only from Upper Eocene (Teleti), Oligocene (Satskhenisi), and Miocene reservoirs (Norio, Shiraki, Taribani, Mirzaani) covering central and eastern Georgia, but exploration continued for the Cretaceous which is a proved reservoir in the North Caucasus.

The Rioni Basin is an underexplored petroliferous basin. In the northern basin segment, the existing oil fields (East and West Chaladidi) and other oil discoveries are related to either post-salt or pre-salt antiformal traps in detachment folds or in poorly understood stratigraphic pinchouts. In the southern Rioni Basin, the oil in existing fields has either anticlinal four-way closures or a subthrust trap related to the leading edge of the North-vergent Achara-Trialet folded belt. Oil seeps occur also in Black Sea offshore areas.

This report integrates the published petroleum geology and available geophysics in Transcaucasian countries to provide an assessment of the petroleum exploration and production activity from basin to play scale. In addition, the study includes an analysis of the areas where existing play types have not been adequately evaluated, together with ideas for future exploration of newer play types which are currently poorly understood by the petroleum industry.

*The study has been conducted by GEPlan Consulting S.r.l. based in Ferrara, Italy. GEPlan is an oil and gas consulting firm that can provide innovative and integrated services for exploration, appraisal and development projects. It has specialistic skills in the characterization of carbonate and fractured reservoirs and in the Italian and Circum-Mediterranean Oil and Gas Prospectivity. This study is part of larger collection of basin studies. These reports describe the geological characteristics of the basin and its evolution through time and they cover the most important aspects related to the hydrocarbon exploration and prospectivity, identifying and characterising the proved and possible plays in the area.*

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# RIONI AND KURA BASINS (GEORGIA AND AZERBAIJAN) PETROLEUM PROSPECTIVITY

## REPORT CONTENTS

### EXECUTIVE SUMMARY

#### **1 INTRODUCTION**

- 1.1 Objectives of the report
- 1.2 Definition of the area and country boundaries
- 1.3 Dataset and Approach
- 1.4 Structure of the report

#### **2 PREVIOUS EXPLORATION HISTORY**

- 2.1 Georgia
- 2.2 Azerbaijan

#### **3 GEOLOGICAL FRAMEWORK**

- 3.1 Geodynamic evolution
- 3.2 Main extensional events
- 3.3 Main compressional events

#### **4 STRATIGRAPHIC EVOLUTION**

- 4.1 Introduction
- 4.2 General evolution
- 4.3 Paleo-Mesozoic deposits
- 4.4 Syn- and post-collisional units

#### **5 TECTONIC EVOLUTION**

- 5.1 General tectonic evolution
- 5.2 Present day stress field
- 5.3 Satellite interpretation
- 5.4 Tectonic domains
- 5.5 Regional cross-sections

#### **6 GEOCHEMISTRY**

- 6.1 Geochemistry of the source rocks
- 6.2 Geochemistry of the hydrocarbons
- 6.3 Geothermal gradients
- 6.4 Migration and Timing

#### **7 PETROLEUM PLAY COMPONENTS**

- 6.1 Source rocks
- 6.2 Reservoirs
- 6.3 Seals
- 6.4 Traps
- 6.5 Basin Modeling

#### **8 EXISTING PETROLEUM PLAYS**

#### **9 CONCLUSIONS**

#### **10 REFERENCES**

#### ENCLOSURES

- ARCGIS PROJECT (VERS. 9.3 AND 10.3)
- REFERENCE MAPS
- CHRONOSTRATIGRAPHIC CHART
- TECTONIC DOMAINS AND MAIN STRUCTURAL LINEAMENTS
- PLAYS DISTRIBUTION

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