



Petroleum Exploration in Exploration

Block No. 4 (Lumbini)



Government of Nepal
Ministry of Industry, Commerce and Supplies
Department of Mines and Geology



Background

The Department of Mines and Geology, Petroleum Exploration Project (DMG, PEP) is a sole body responsible for conducting petroleum exploration and promotion activities in Nepal. PEP has conducted a series of geological, geophysical, and geochemical surveys in the southern part of Nepal with bilateral and multilateral co-operations in the past. At present, the Petroleum Exploration Project seeks the National and International Oil and Gas Exploration and Production Companies desirous of undertaking Petroleum Operations in Exploration Block-4 (Lumbini) that accommodates the parts of Chure and Terai in the southern part of Nepal.



Sector
Mines and Minerals



Location
Area covering parts of Dang (Ghorahi), Sandhikharka, Taulihawa – Parts of Province 5



Land Lease Area
4965 Sq. Km.

Toposheet No:

2782 12AB, 2783 9AB, 2782 6AB, 2782 7ABCD 2782 8ABCD, 2783 5ABCD, 2782 2 ABCD, 2782 3ABCD, 2782 4ABCD, 2783 1ABCD, 2882 14ABCD, 2882 15ABCD, 2882 16ABCD, 2883 13ABCD (Scale 1:25,000)

Area Description:

Plain land of terai and hills of Siwalik with some parts of Lesser Himalaya

Objective

- To confirm the occurrence of petroleum products in the area
- To understand the quantity of oil and gas reserve in the deposit

Accessible through air route (to Bhairahawa and Tulsipur Airports) and through roadways (Mahendra Highway, Siddhartha highway) Approx. 250 km from Kathmandu

Presence of National grid domestic electricity
Multiple substations and transmission lines to feed electricity for the project.

Utilization of Petroleum



Fuel



Chemical Feedstock



Asphalt



Lubricants



Cosmetics



Other Uses
Production of medicines, fertilizers, plastics, solvents

Project Outcomes



Revenue Generation through petroleum extraction and sales



Reduce foreign trade deficit via exporting /minimizing imports



Creation of employment Opportunities



Infrastructure Development



Diverse Industrial Application of extracted fuel



Stimulate growth in axillary industries and trade

Geology

Exploration Block covers Areas of the Terai, Siwalik, Surkhet, Gondwana and Lakharpata Groups of Rocks

Terai Group

- Northern extension of the Indo-Gangetic Plain
- Composed of thick undifferentiated fluvial deposits ranging from Recent to Quaternary age
- Underlain by thick, flat-lying molasse sediments of the Siwalik Group

Surkhet Group

- Well exposed: Upper Cretaceous-Lower Miocene
- Chief lithologies of shales, sandstones, and volcanic rocks

Lakharpata Group

- Late Precambrian - Late Paleozoic
- Well-exposed along the Main Boundary Thrust (MBT)
- Contains potential source rocks within the Sangram, Gwar, Khara, and Katwa Formations.

Gondwana Group

- Upper Paleozoic to Lower Cretaceous
- Overlies the Lakharpata Group

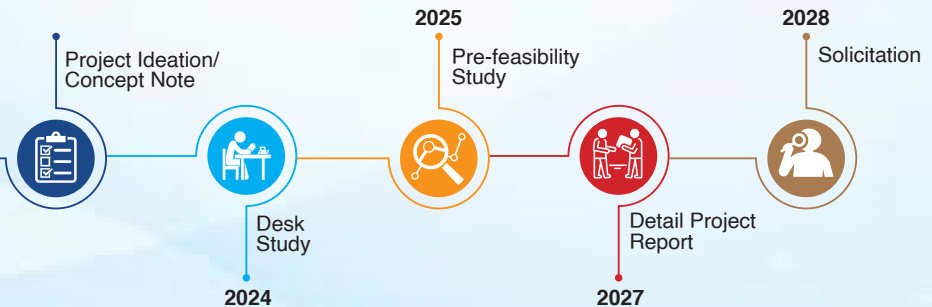
(Geology supports the rock characteristics as potential source and reservoir whereas the geological structures justify the trap for petroleum preservation)

Grade and Reserve

- Potential reservoir source rocks identified in: Lakharpata, Gondwana & Surkhet Group of rocks
- Shale beds: 2 to 20% of Total Organic Content (TOC)
(Siwalik Group Particularly contains abundant reservoir type rocks)
- Traps
 - Includes Anticlines and thrust/ faults developed in the Siwalik Fold Belt.
 - Structural closures expected to be associated with basement-controlled faults, grabens, edge folds and fault closures, draping over pre-existing high and stratigraphic traps caused by pinch out, facies changes, permeability barriers etc.
- Based on Source Rock Maturity Basin Modelling
 - Oil Window: Suntar, Swat and Melpani Formations of Surkhet Group and Gondwana Group
 - Gas window: Lakharpata Group

(Good maturations for gas and even oil expected in the blind frontal thrust folds beneath the Terai/ Siwalik areas)

Project Implementation Timeline



(Various works in the area have been conducted in the past. The current exploration plan is based on previous leads from surveys conducted in 1900s.)

Project Implementation Modality



Private
Investment



Royalty Structure:

In the conduct of Petroleum Operations, a Contractor shall be exempt from payment of all taxes, charges, duties, and fees leviable under prevailing law except: A royalty of at least 12½ percent as prescribed on the value of Petroleum sold or disposed of. Such royalty shall be paid either wholly or partly in Crude Oil or in cash or both as may be fixed by Government of Nepal.

Additional Information

The duration (period) of the Initial Exploration shall be Four Contract Years from the Effective Date of the commencement of petroleum agreement and may be extended up to Three Contract Years if found necessary.

- Main sets of Enabling legislation governing the negotiation, the conduct of petroleum related operations and the fiscal treatment of these activities:
 - Nepal Petroleum Act 2040 (1983)
 - Petroleum Regulation, 2041 (1985) and its amendments and,
 - Petroleum Industry (Income Tax) Regulation, 2041 (1985)

Available Data Based on:

- Magnetic Survey Reports
- Seismic Survey Reports
- Photogeological Study reports
- Geological maps and reports

Relevant Agencies

- Ministry of Industry, Commerce and Supplies
- Department of Mines and Geology, Petroleum Exploration Project

About the Agency

The Department of Mines and Geology, Petroleum Exploration Project (DMG, PEP) is a sole government organization responsible for planning and conducting petroleum exploration and promotion activities in Nepal.

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