



Smart Solutions for Today's Geoscientist



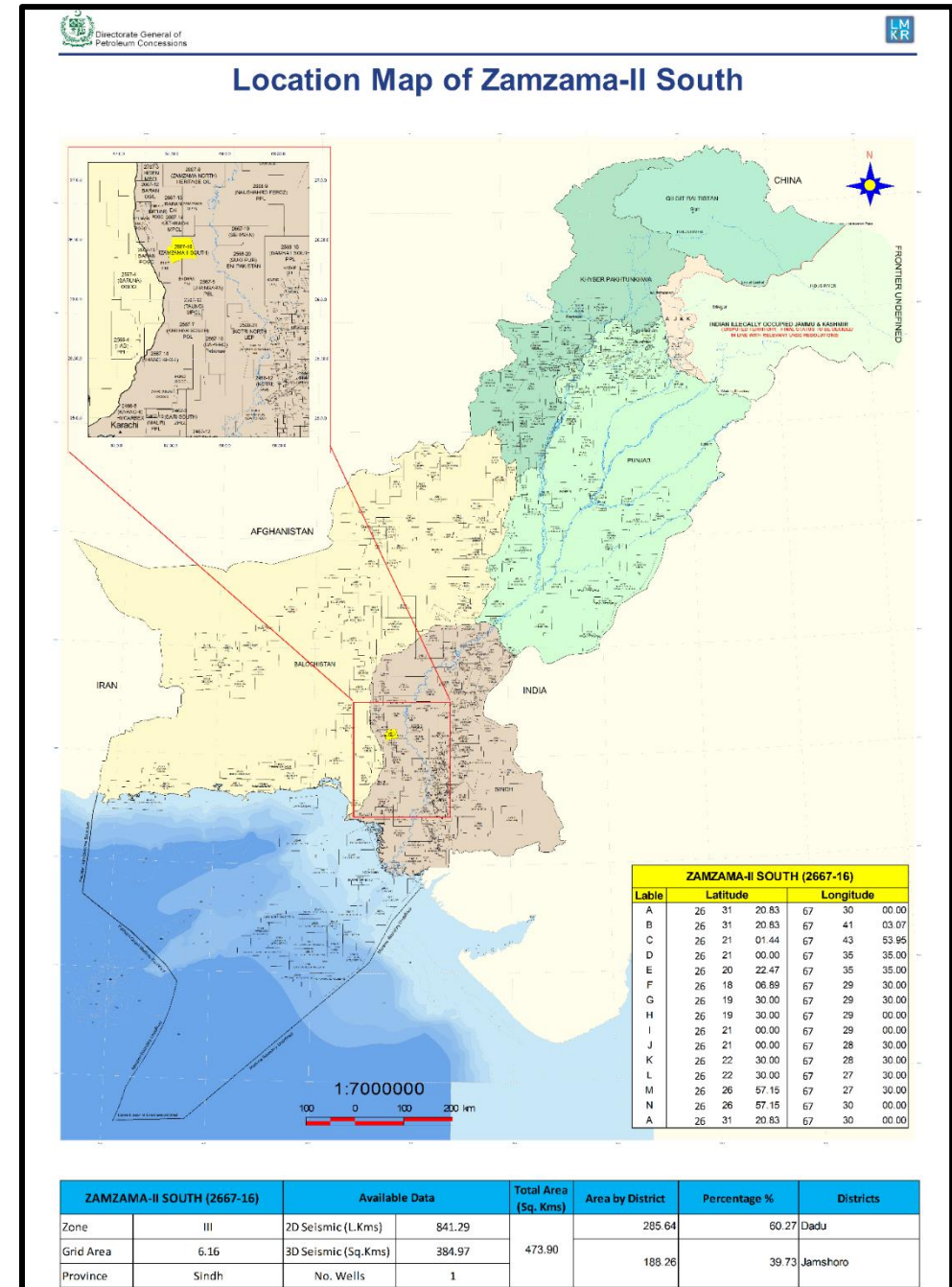
# BLOCK: ZAMZAMA-II SOUTH (2667-16)

ONSHORE BLOCK BIDDING ROUND 2025

MINISTRY OF ENERGY PETROLEUM DIVISION (DGPC)

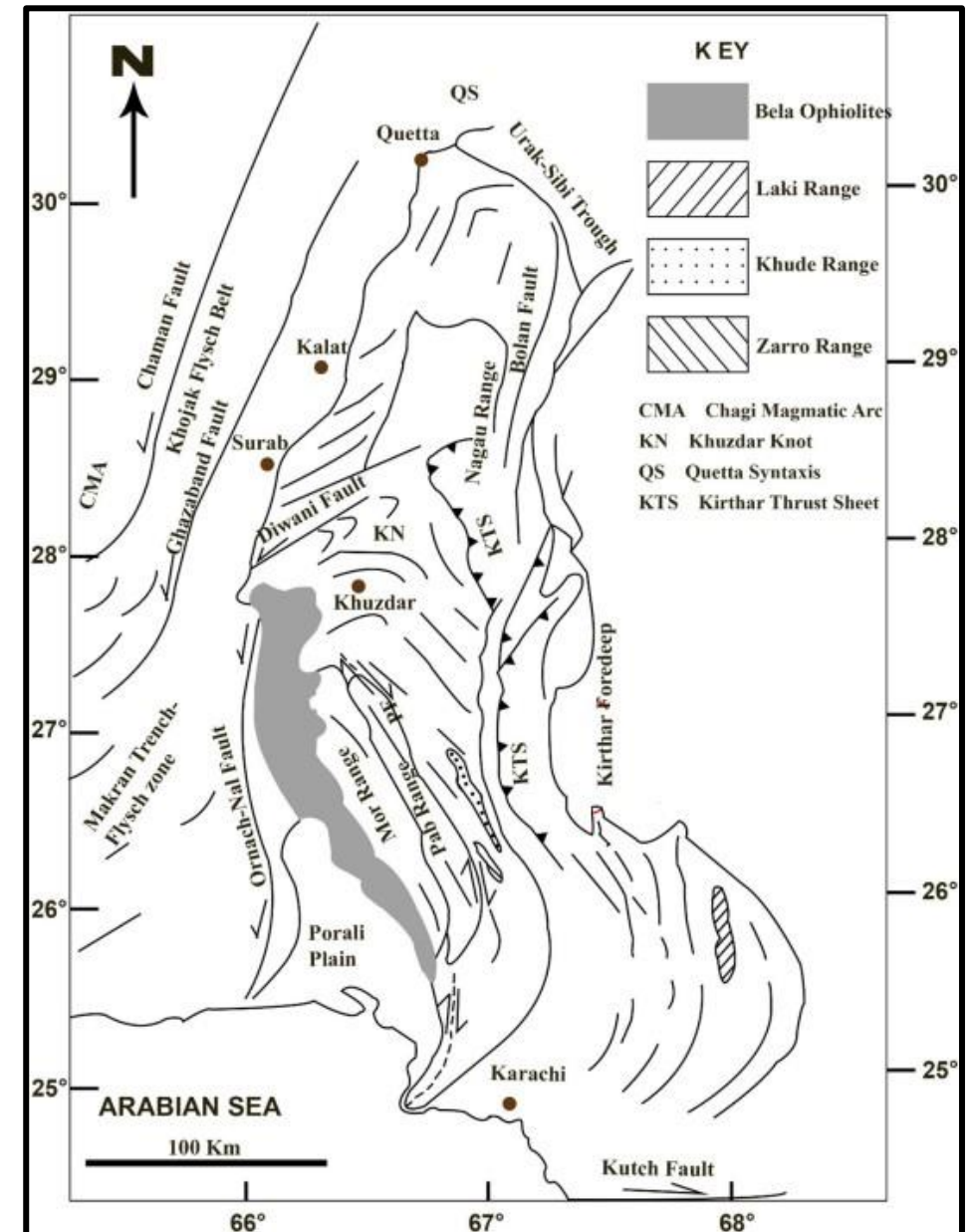
# Introduction

- ZAMZAMA-II SOUTH block covers an area of 473.90 Sq. Kms.
- Geological basin: Lower Indus basin, Pakistan.
- The block falls in Prospectivity Zone III.
- ENI, PPL, LAMSO, OGDCL, and BHP acquired 2d and 3d seismic data approximately 841.29 L. Kms and 384.97 Sq. Kms in the block within the years 1980, 1996, 1997, 2003, 2004, 2010, and 2011.
- The block is surrounded by Bhit (West), Sukhpur(East) and Zamzama (North) blocks.
- The well drilled in the vicinity of block is Manchar X-01.



# Geological Map

- The collision of Indian and Eurasian plates resulted in the creation of north-south trending Kirthar Fold Belt (KBF) in the Southern Indus Basin.
- The basin is comprised of five structural elements units, i.e., Kirthar Fold Belt, Kirthar Foredeep, Karachi Trough, Thar Platform, and Offshore Indus. The present study area belongs to the western portion of Kirthar Foredeep, which is located between the Kirthar Foldbelt and Thar Platform.
- In the north of Kirthar Foredeep, Jacobabad Mari Kandkot high is present. It is bounded in the south by the Hyderabad high and in the east by the Tharpakar high in the west by KBF Bela Ophiolite.



# Petroleum System

## Source Rock:

- The Cretaceous Mughal Kot shale units are considered to be the main source rocks and were deposited in shallow marine and deltaic environments. The organic matter (kerogen) of the Mughal Kot Formation belongs to type III and the total organic carbon (TOC) is in the range from 0.57 to 1.65%.

## Reservoir Rock:

- Pab Formation is a proven reservoir in many fields of the Kirthar Fold Belt and Foredeep areas, e.g., Bhit, Hallel, Lundali, Mehar, and Zamzama. In Kirthar Fold Belt, outcrop data also indicate that the Pab Formation is an excellent reservoir with a high Net to Gross (NTG) ratio. In Zamzama Gas Field, Cretaceous Pab Formation is the major reservoir.

## Seal:

- The overlying Paleocene shales of Ranikot Group have a good basal muddy horizon which provides top seals to the Pab Formation.

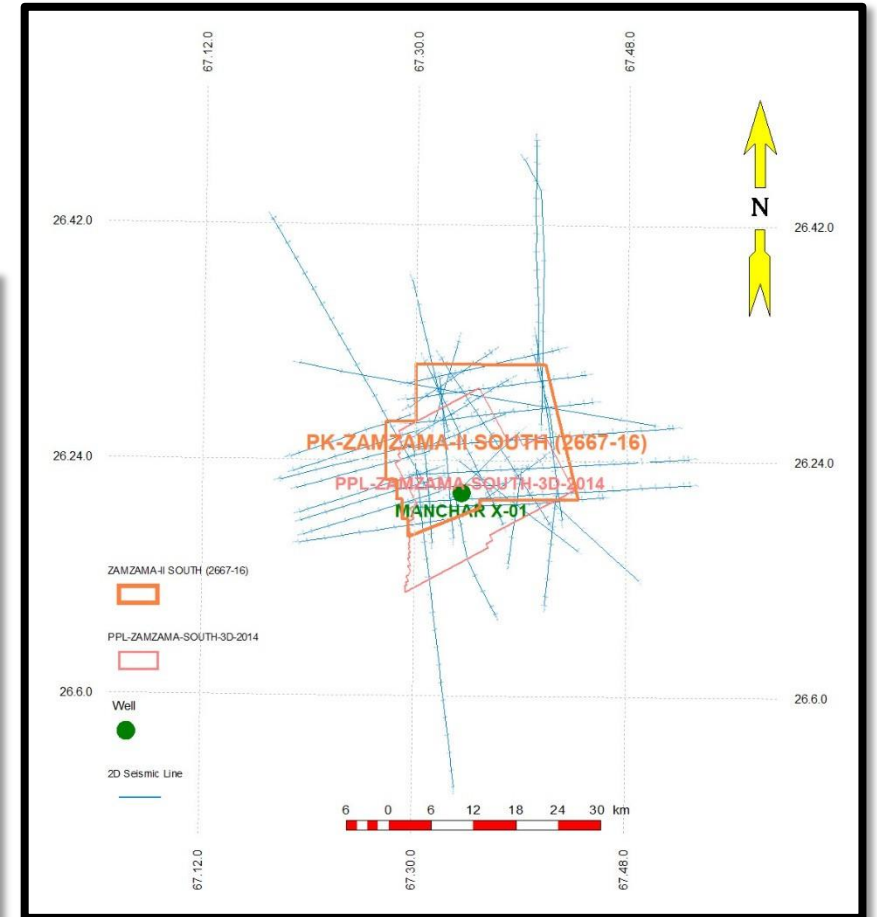
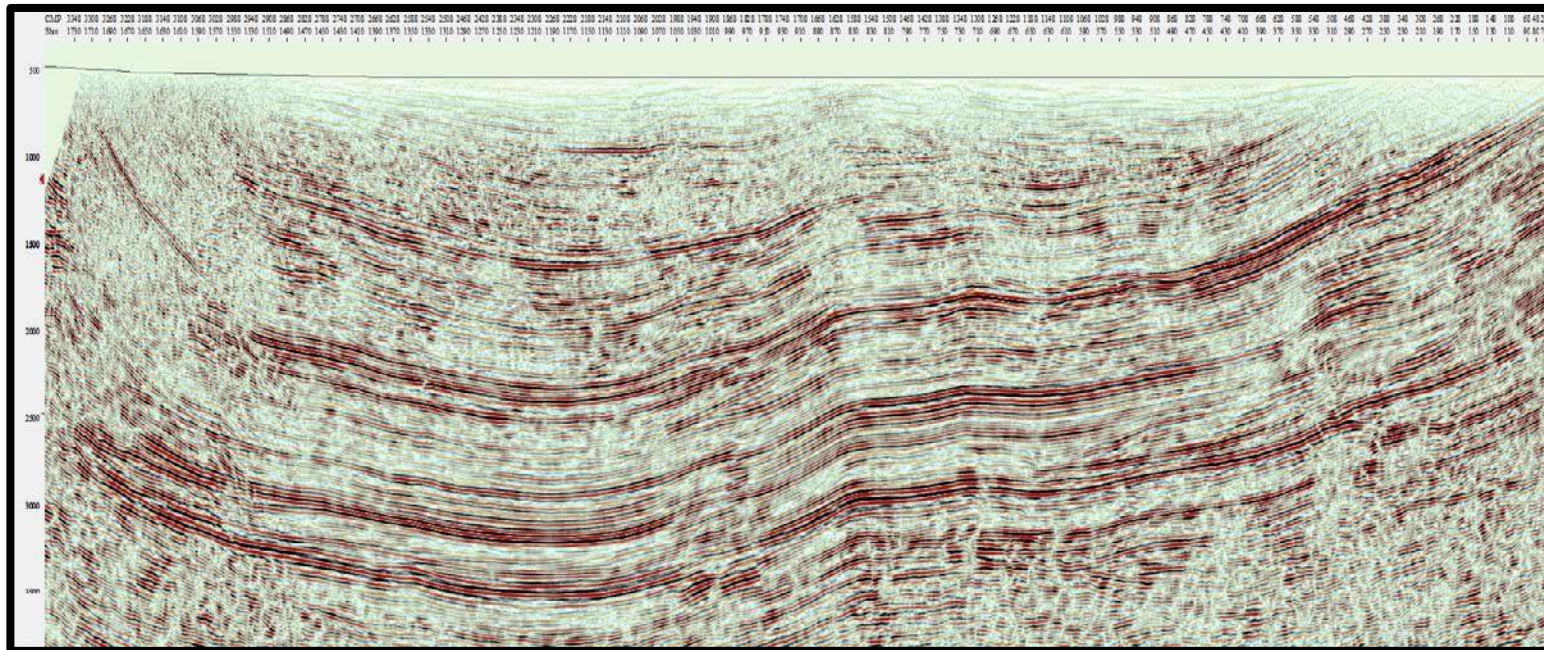
## Trap:

- Most of the traps are fault-bounded structures having thrust/reverse faults.

| AGE      |            |                         |   | DESCRIPTION                          | LITHOLOGY                             |  |
|----------|------------|-------------------------|---|--------------------------------------|---------------------------------------|--|
| ERA      | PERIOD     | EPOCH                   | FORMATION                               |                                      |                                       |  |
| CENOZOIC | QUATERNARY | HOLOCENE                | ALUVIUM                                 | CLAY, SHALE, SANDSTONE, CONGLOMERATE |                                       |  |
|          |            | PLEISTOCENE<br>PLIOCENE | SIWALIK                                 | SANDSTONE, SHALE, CONGLOMERATE       |                                       |  |
|          |            |                         | GAJ                                     | SHALE, LIMESTONE, SANDSTONE          |                                       |  |
|          | PALEOGENE  | OLIGOCENE               | NARI                                    |                                      |                                       |  |
|          |            |                         | Eocene                                  | LATE                                 |                                       |  |
|          |            | MIDDLE                  |   | KIRTHAR                              | SHALE, LIMESTONE                      |  |
|          |            | EARLY                   |   | LAKI                                 | LIMESTONE INTERBEDDED SHALE           |  |
|          |            | PALEOCENE               | RANIKOT (SEAL)                          | LIMESTONE, SANDSTONE, SHALE, BASALT  |                                       |  |
|          | MESOZOIC   | CRETACEOUS              | LATE                                    | PAB (RESERVOIR)                      | SANDSTONE, SHALE                      |  |
|          |            |                         |   | MUGHAL KOT (SOURCE)                  | LIMESTONE, SHALE WITH MINOR SANDSTONE |  |
| PARH     |            |                         |   | LIMESTONE                            |                                       |  |
| EARLY    |            | GORU                    | UPPER                                   | SHALE AND MARL                       |                                       |  |
|          |            |                         | LOWER                                   | SHALE AND SANDSTONE                  |                                       |  |
|          |            | SEMBAR (SOURCE)         | OIL/GAS SHALE WITH MINOR SANDSTONE      |                                      |                                       |  |
| JURASSIC |            | LATE                    |   |                                      |                                       |  |
|          |            | MIDDLE                  | FEROZABAD GROUP                         | LIMESTONE AND SHALE                  |                                       |  |
|          | EARLY      | ANJIRA                  | LIMESTONE INTERBEDDED WITH SHALE & MARL |                                      |                                       |  |
| KHARRARI |            | LIMESTONE, SHALE, MARL  |   |                                      |                                       |  |



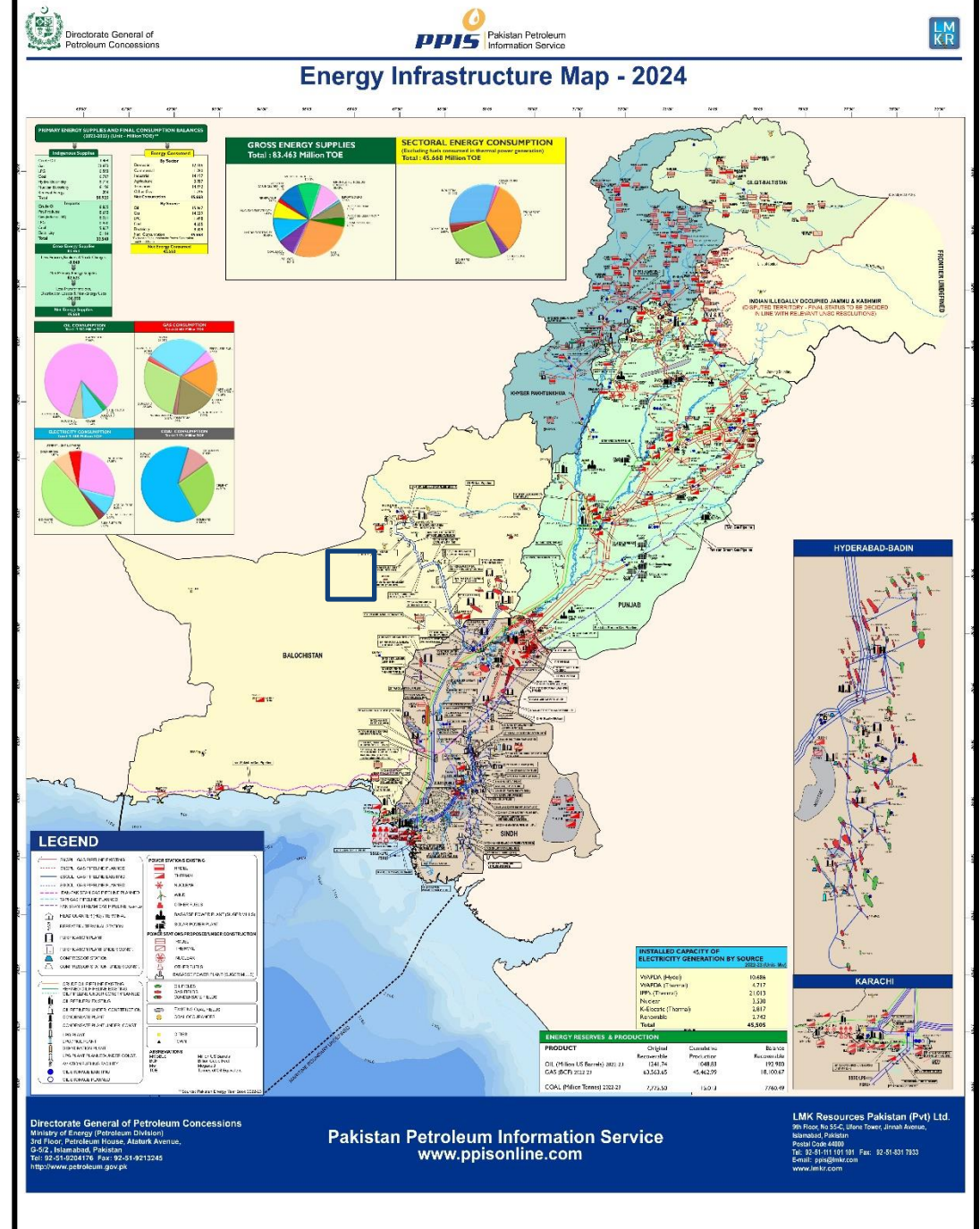
# Prospectivity



- High resolution seismic data can allow to delineate true potential of the block.

# Infrastructure Map

- Government support to companies for infrastructure development.
- Gas fields exist near the block.
- Thermal power plant exist near the block.
- Purification plant exist near the block.



# Investment Benefits

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- Low risk, high reward.
- Prolific gas discoveries throughout basin.
- Low cost on infrastructure development within limited timeframe.
- Return on Investment within 3 years.
- Attractive government policies for foreign investors.
- Excellent purchase rate set by the Government against the discovered commodity.
- Government will guarantee to buy the gas or oil discovered.
- Attractive price in case of tight gas discovery.

# Block Summary

| Item                                    | Indicators         |
|---|--------------------|
| Probable multiple sources in the region | Positive Indicator |
| Discoveries in Geological Basin         | Positive Indicator |
| Nearby Infrastructure                   | Positive Indicator |
| ROI in 3 Years                          | Positive Indicator |



# THANK YOU

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