

## **DISTRIBUTION OF OIL AND GAS IN INDIA**

Two private sector companies have engaged in exploration of oil and gas are –

1. ONGC
2. Oil India Ltd.

They have identified 260 oil and gas field in India, spreading in North, eastern part of India (Assam) , Western Coastal region (Bombay High, Cambay basin) Eastern coastal region (Gujarat, Kaveri, Krishna Basin), Western Rajasthan region (most vulnerable area, huge amount ).

**Category I** – Basin (NE India, East Coastal region , Bombay High, Cambay Basin, Western Rajasthan

region) . Proven Commercial Productivity

**Categories II** - Basin (NE Region, Jammu and Kashmir, Himachal , Gujarat ). Identified prospectivity

**Category III** – Basin (Western Coastal region, Coromandal Coastal region, West Bengal, North

Prospective Basin, Bihar and adjacent Himalayan region).

**Category IV** – Basin (Parts of Andhra Pradesh, Interior Potentially Prospective, Maharashtra and parts of

Jammu and Kashmir).

The sedimentary basins of India occupied an area of 1,780,000 sq. km of which 3,90,000 sq.km are in off shore upto 200 water depth. Besides an area of 1,350,000 sq.km exists in deep water.

The sedimentary basins are on the Indian shield as well as on its margins, however the basin occurring on the shield are older whereas the basins occurring on its margins are younger ( of Mesozoic and tertiary age). The sedimentary basins are of great variety each being individually distinct. Their time span and time and distribution of sedimentary rocks that have accumulated vary. Based on these criteria the area containing sedimentary rocks in India is generally divided into 26 sedimentary basins.

**Of these commercial quantities of oil and gas been established in following 7 basins.**

1. Assam
2. Bombay Offshore
3. Cambay
4. Cauvery

5. Krishna Godavari
6. Tripura – cachar
7. Western Rajasthan.

Most of the oils are in structural traps with some control of stratigraphic lithology elements in a few fields especially around Mehsana in Northern Gujarat, Gandhar in Southern Gujarat. The main reservoir rocks are sandstone except in Bombay off shore basin where limestones are the main reservoir.

Oils are found in rocks ranging in age from Precambrian to Pleiocene. But oil and gas is mmostly localized in the rocks of Eoecene age. Except in Cauvery basin and Krishna Godavari Basin they are localized in Cretaceous age.

#### **1. Assam Basin :**

Major oil accumulation are known in Barail and Tipam group of Oligocene and Miocene age.

#### **2. Bombay Off Shore Basin:**

Oil and gas accumulation are present in different groups within Bombay offshore Basins.

- i. Within sandstone reservoir of Oligocene- Lower Miocene age. North Tapti Field.
- ii. Within Miocene limestone reservoir – eg. Bombay high.
- iii. Bassein Limestone reservoir of middle Eocene to Oligocene. Eg. Bassein, Herra, Panna, Neelam fields.

#### **3. Cambay basin :**

All the hydrocarbon reservoirs are either sandstone or siltstone.

The reservoir in different stratigraphy are -

- i. Siltstone in olpad formation – Palaeocene age.
- ii. Lenticular sandstone in Kadi formation and Cambay Shales - Lower Eocene age.
- iii. Sandstone in Ankleshwar formation and siltstone and sandstone in Kalol formation – Middle Eocene age.
- iv. Lenticular sands in Tarapur shales and sandstone in Dadhar Formation – Upper Eocene age.

#### **4. Cavery Basin :**

Oil and gas accumulation have found in Cauvery Basin of Fractured Basement and in sandstones of cretaceous to Oligocene age .

THE MAIN RESERVOIRS ARE SANDSTONE WITHIN

- i. Bhuvangiri Formation
- ii Nannilam Formation
- iii Kamalapuram Formation.

#### **5. Krishna Godavari Basin :**

Oil and Gas accumulation are present in arenaceous sequences of different formation belonging in age from – Permo – Triassic to Pleiocene.

**6. Tripura – Cachar Basin :**

Reservoir rock are present in Renji, Bhuban and Bokabali formation of Surma Group.

**7. Western Rajasthan :**

Province has been divided into 3 basins

- i. Bikaner- Nagaur Basin
- ii. Jaisalmer Basin
- iii. Barmer Basin

The main reservoir rocks are both sandstone and carbonate rocks ranging on age from early Cambrian to Jurassic.

The hydrocarbon accumulation have been reported from.

Bikaner- Nagaur and jaisalmer basin. In Bikaner – Nagaur basins oil has been reported from early Cambrian limestone late Cambrian limestone and Mesozoic limestone.

In Jaisalmer basin oil and gas has been reported from the sandstone of cretaceous and Jurassic age.