**16.0 INTRODUCTION**

The oil and gas fields are located offshore in the Malay Basin. Exploration for oil and gas in the offshore Tertiary basins of Peninsular Malaysia commenced in 1968, with the award of concession blocks to Esso Exploration and Conoco. Esso’s acreage covered the offshore Malay Basin, north of the 5° N latitude, whereas the acreage south of the 5° N latitude, covering the southern Malay Basin and Penyu Basin, was granted to Conoco (Fig. 16.1). Off the west coast, Mobil was awarded a concession in the northern part of the Straits of Malacca (Fig. 16.1). The first exploration well was drilled in 1969 in the Malay Basin, resulting in the Tapis discovery. Exploration efforts have continued in the Peninsula since 1969. By the end of 1997, more than 194,000 line-km of 2D seismic and 247,000 line-km of 3D seismic have been acquired, and a total of 158 wildcat and 184 appraisal wells have been drilled (Wong, 1999). These exploration activities resulted in significant successes in the Malay Basin. Unfortunately, results in the Penyu basin and the Straits of Malacca have been disappointing.

The exploration efforts up to end of 1997 resulted in the discovery of 53 oil and 28 gas fields, with oil-initially-in-place (OIIP) of 12.5 billion bbls (barrels) and gas-initially-in-place (GIIP) of 57.1 TCF (trillion cubic feet). The estimated recoverable reserves are 4.3 billion bbls oil and 39.4 TCF gas, excluding small oil discoveries with <8 million bbls (MMB) recoverable reserves and gas discoveries with <50 billion cubic feet (BCF) recoverable reserves.

The first oil production from the Malay Basin came from the Tapis field in March 1978, and the first gas production was from the Duyong field in 1984 (Mazlan et al., 1999a). By the end of 1997, 15 oil and 4 gas fields were in production, with cumulative production of some 1.9 billion bbls oil and 2.8 TCF gas (Wong, 1999).

**16.1 ACREAGE SITUATION**

In 1971, the acreage situation of exploration blocks, awarded under the concession system, in offshore Peninsular Malaysia consisted of 3 blocks, namely, Mobil’s block in the northern part of Straits of Malacca, Esso’s block in the northern half of the Malay Basin north of the 5° N latitude, and Conoco’s block south of the same latitude (Fig. 16.1).

In 1974, Malaysia introduced the Petroleum Development Act (PDA), under which the entire ownership of the petroleum resources of the country was entrusted to the newly-established government-owned company, called Petroliam Nasional Berhad (PETRONAS). This company was incorporated on 17 August 1974. PETRONAS introduced Production Sharing Contracts (PSCs) to replace the concessions previously

---

**ACRONYMS and TERMS used in this chapter:**

- Acreage = an area of land or sea
- API gravity = American Petroleum Institute specific gravity
- AU = Assessment Units
- Bbl = barrel = 36 imperial gallons or 42 U.S. gallons (roughly 192 litres)
- bbls/d = barrels per day
- BCF = billions of cubic feet
- Boe = bbls of oil equivalent
- CPOC = Carigali-PTTEP Operating Company
- CTG = Carigali-Triton Operating Company
- E & P = exploration and production
- EPMI = Esso Production Malaysia Inc.
- EUR = estimated ultimately recoverable
- FAMM = Fluorescence Alteration of Multiple Macerals
- GHA = Gas Holding Area
- GIIP = gas-initially-in-place
- GOC = Gas-oil contact
- GWC = gas-water contact
- HC/g = hydrocarbon content per gram
- HI = hydrogen index in pyrolysis
- HPHT = High-pressure high-temperature
- IPC = International Petroleum Corp.
- JAOPEX = Japan Petroleum Exploration
- JOA = Joint Development Area
- mD = millidarcies (measure of permeability)
- MMB = million barrels (Scientists use M for million, oil companies use MM for million)
- MMscf/d = million standard cubic feet per day
- MTJA = Malaysia-Thailand Joint Authority
- MTI = Malaysia-Thailand Joint Authority
- OIIP = oil initially in place
- OWC = Oil-water contact
- PCSB = PETRONAS Carigali Sdn. Berhad
- PDA = Petroleum Development Act
- PETRONAS = PETRONAS Carigali Sdn. Berhad
- PSC = Production Sharing Contract
- PSCB = PETRONAS Carigali Sdn. Berhad
- PPT = Petroleum Authority of Thailand
- PTTEP = PTT Exploration and Production
- R/C = Revenue-Over-Cost
- scf = standard cubic feet
- SDOIP = Stock Tank Oil Initially In Place
- TCF = trillion cubic feet
- TOC = total organic carbon
- TPS = total petroleum systems
- VRe = equivalent vitrinite reflectance