

owned Government of India enterprise and its operations today are spread over the States of Assam, Arunachal Pradesh, Orissa, Rajasthan and Andaman Islands.

During the early sixties, oil in commercial quantities, was struck by ONGC at Ankleshwar, Kalol, Sanand and Nawgaon fields in Gujarat and Rudrasagar and Lekwa fields in Assam. Gas was found at Cambay. From 1964 onwards ONGC ventured onto offshore areas in the Gulf of Cambay and off the Madras coast.

Throughout the seventies India continued to meet most of its requirements for petroleum products by refining imported crude. The heightened activity in the offshore however culminated in the discovery of the Giant Bombay High field in 1975 which marked a significant watershed for oil discovery and production in India.

In the early 1980's, about 77% (over 23 MTA) of Indian requirements continued to be imported. Principally as a result of the development of Bombay High, however, this figure dropped to 37% by 1987. A full 70% of domestic production originates at the Bombay High field with the balance being produced in about equal proportions from onshore areas in Gujarat and Assam.

After the discovery of Bombay High, the exploration programme of the late 70's and the early 80's yielded some success but new discoveries were of limited significance. Of note were discoveries made in the Andamans, Krishna-Godavari and Cauvery basins. New fields where production started recently were in Indroda, Nandason, Gandhar, Linch, Asjol, Baroda-Padre, Denwa, Warason and Jalora Ext. 1 in the Western Region and Panna in the Bombay offshore region. During 1987-88 oil strikes at GS-16 in the Krishna-Godavari offshore area, Bhuynagiri in Cauveri basin, Kumchai in Arunachal Pradesh, and gas finds at Agartala Dome in Tripura were the major discoveries.

## Geology--Future Promise

The total area of India's sedimentary basins is 1.72 million square kilometres of which about 1.4 million (81%) is onshore and 0.3 million square kilometres is offshore. The entire area is divided into 26 sedimentary basins of which 13 are under exploration. These 13 basins can be divided into three categories:

- (a) Petroliferous basins with proven commercial production: Cambay basin, Upper Assam shelf and Bombay offshore basin.
- (b) Basins with known occurrence of hydrocarbons but where no commercial production has yet commenced: Rajasthan, Cauvery, Krishna-Godavari, Andamans, Bengal, Himalayan foothills, Ganga Valley and Tripura-Nagaland fold belt.
- (c) Basins where significant shows of hydrocarbons have yet to be found but are considered prospective on general geological grounds: Kutch-Saurashtra, Kerala-Konkan, and Mahanadi.

Several other promising sedimentary basins which may be prospective based on a comparison with analogous hydrocarbon-producing basins in the world are Gondwana, Vindhyan and Deccan Syncline.

The prognosticated resources of hydrocarbons are about 17 billion tonnes of which 63% are offshore and 37% onshore corresponding to some 4-5 billion tons (30-35 billion barrels) of commercially recoverable reserves. To date approximately 700 million tonnes (MT) of oil and 650 MT oil equivalent of gas reserves have been proven.

## Production and Demand--A Growing Gap

Domestic production of petroleum has not kept pace with demand. Oil production from Bombay High has now reached a plateau and is expected to start declining after 1992. Production from other regions is being sustained by improved recovery levels and augmented by marginal discoveries of new reserves.