



Association for the Study of Peak Oil&Gas

512. Country Assessment - India

The Republic of India covers an area of some 3M km², making it the seventh largest country in the World. Topographically, it is divided into a mountainous north, flanking the Himalayan Range; the North Indian Plain, drained by the Indus and Ganges Rivers; and the Deccan Plateau in the south, which itself is flanked by the Western and East Ghat mountain ranges, locally rising to around 3000m. Its climate is characterised by three seasons: hot and wet from June to September; cool and dry from October to February; and hot and dry from February to June. But they are subject to marked annual variations, spelling famine if the rains are late or weak, or flooding in the opposite case. Much of the country is forested.

India (which included Pakistan prior to 1948) has had a very long history, with the earliest records of the Indus Civilisation going back more than 4000 years. That was followed by the so-called Aryans, so admired by the Nazis, who spread out from Central Asia to populate India as well as Europe and intervening territories. Later, came Greek, Roman, Arab and Turkish influences, and the growth of sundry kingdoms, whose fortunes waxed and waned with the passage of history. The people enjoyed an advanced culture embracing many religions, principally Buddhism, which itself evolved and split into diverse sects. Arab invasions and raids brought the Muslim faith particularly to northern and western India from the 12th Century onwards. The great Mughal Empire, lasting for 200 years from 1526, effectively unified the sub-continent, bringing an age of affluence and stability, as well as the growth of trade with Europe, but it finally disintegrated with conflicts between the nobility.

The Portuguese navigator Vasco da Gama had landed in 1498, paving the way for the establishment of Goa as a Portuguese territory. The Dutch and French also had a presence, but it was the British who finally made India the jewel of their Empire. British influence started with the East India Company that secured a trade monopoly in 1600, and later demanded military and political support, becoming an early kleptocracy as its functionaries amassed great wealth. Tea plantations were established in the early 19th Century, especially in the hill country of Assam, becoming a major source of export earnings, as Europeans developed a taste for it. British control was achieved gradually by a series of alliances with the separate principalities making up the country as well as through military engagements (one notable General was named Sir Colin Campbell).

The pinnacle of British power came in the latter part of the 19th Century, and seems to have enjoyed wide support from the people at large. Indian regiments under British officers were raised, playing heroic parts in the both World Wars. But stirrings of independence developed in the early 20th Century, receiving some sympathy in the mother country. The movement was led by Mahatma Gandhi (1869-1948), who preached tolerance and non-violence. The eclipse of the British Empire in the Second World War and the ensuing socialist regime paved the way for Indian independence, which was granted in 1947. It saw the partition of the country into mainly Hindu and Muslim territories, the latter becoming Pakistan, but it cost the lives of more than a million people in various factional massacres.

The new government, led by Mr Nehru, faced a continuation of communal conflict resulting from partition and economic dislocation, to be soon followed by the outbreak of an undeclared war with Pakistan over the status of Kashmir, with its predominantly Muslim population, which found itself on the wrong side of the dividing line.

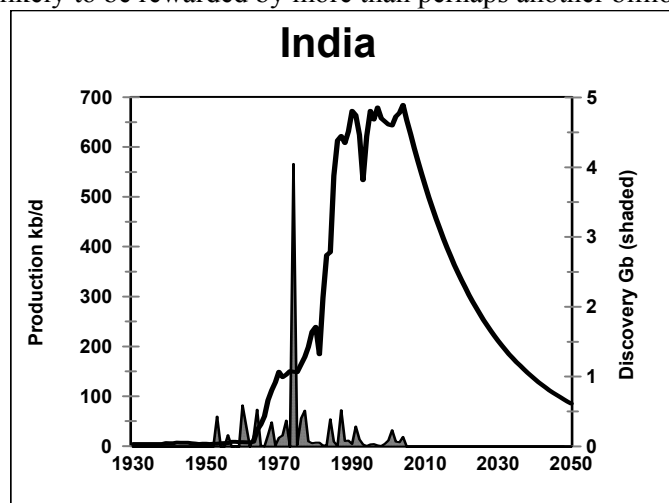
INDIA		<i>Regular Oil</i>
Population M		1000
Rates Mb/d		
Consumption	2004	2.4
	per person b/a	0.9
Production	2004	0.685
	Forecast 2010	0.52
	Forecast 2020	0.33
Discovery 5-yr average Gb		0.01
Amounts Gb		
Past Production		6.1
Reported <i>Proved Reserves*</i>		5.37
Future Production - total		5.4
	From Known Fields	4.5
	From New Fields	1.0
Past and Future Production		11.5
Current Depletion Rate		4.4%
Depletion Midpoint Date		2003
Peak Discovery Date		1974
Peak Production Date		2004

*Oil & Gas Journal

India has not proved to be an easy place to govern. Nehru's daughter, Indira Gandhi, came to power after the death of her father. She proved to have an iron will and an autocratic style, taking a non-aligned position between the opposing powers in the Cold War, but was shot dead in 1984 by two Sikh guards following a dispute with the Sikh minority. She was succeeded by her son Rajiv, who was in turn assassinated by a Tamil suicide bomber in 1991. His Italian-born widow, Sonja, might have come to power recently with adequate political support, but perhaps wisely stepped aside for the present incumbent, Manmohan Singh, a gentle economist, educated at both Oxford and Cambridge.

In geological terms, India forms a segment of the ancient southern continent of Gondwanaland that moved northwards to collide with the Eurasian Plate some 50 million years ago. In regional terms, this continent was deficient in oil prospects, primarily because the conditions for oil generation were restricted in high southern latitudes. It is not surprising, therefore, that India is not rich oil territory, although some marginal basins have delivered modest results. The largest of these, with some 2.5 Gb, is the Bombay High, off the west coast, which was found in 1974. The industry is dominated by the State Company, ONGC, although some small foreign private firms are also active. About 1300 wildcats have been drilled, finding 10.5 Gb of oil, of which 6 Gb have been produced. Exploration drilling peaked in 1991 when 88 wildcats were drilled, but is now down to about half that number. A fairly high level of activity is likely to continue, as the country is in desperate need of oil, but is unlikely to be rewarded by more than perhaps another billion barrels, mainly in small fields. Some interest is now being devoted to deepwater possibilities, but the outcome is far from assured.

Production stands at 685 kb/d, which is likely to be the peak, the midpoint of depletion having been passed in 2002. At the current Depletion Rate of 4.4%, production is set to fall to about 500 kb/d by 2010 and 330 kb/s by 2020. Consumption stands at 2.4 Mb/d, giving the country a large and growing need of imports, which will be increasingly difficult to obtain. This readily explains why State-backed Indian companies are taking up rights overseas in for example the Sudan, Libya, Iran and Venezuela (see also Items 511 and 513).



The country's gas potential is also limited. Only 42 Tcf have been discovered, of which 13 Tcf have been produced. Production stands at about 2 Tcf/a. The country has substantial coal deposits, although some have a high arsenic content which has caused serious environmental damage in the past.

India has recently enjoyed something of an economic boom, based in part on services run through the Internet. Western manufacturers have also set up to benefit from cheap labour. It is however likely to be a short-lived chapter of relative prosperity, as imported energy becomes at first expensive and then in short supply. An economic downturn will likely impinge on an already fragile political structure, rendered even more difficult by the country's huge population of more than a billion.

How India will fare during the Second Half of the Oil Age is hard to predict, but disintegration is a possible outcome, as people revert to their old communal and religious identities, a process which will probably be accompanied by much bloodshed and suffering. Clearly, the present population far exceeds the carrying capacity of the land, but the Indian is blessed by a smiling, benign spirituality that helps.

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