

Riva concludes that the world's total original endowment of recoverable petroleum was roughly equivalent to 5,560 billion barrels of oil. Subtracting the natural gas component, the original "oil" resource – that is, light-medium crude oil, heavy crude oil, natural gas liquids, bitumen and shale oil – was roughly 4,000 billion barrels. The lighter, more desirable petroleum fuels, which are less costly to produce and process, lie predominantly in the Eastern Hemisphere. The heavier, less desirable petroleum fuels, which are more costly to produce and process, lie predominantly in the Western Hemisphere.

Approximately 40,000 oil fields have been discovered worldwide since 1860. The largest class of field is the supergiant, containing more than 5 billion barrels of recoverable oil. Thirty-seven supergiant fields have been found and these fields originally contained an estimated 51% of all the conventional crude oil discovered to date. The Persian Gulf region holds 26 supergiant fields, of which 11 are located in Saudi Arabia. The world's largest field, Ghawar, was found in 1948 and its 86 billion barrels of recoverable oil transformed Saudi Arabia into the world's leading oil nation. Kuwait's Burgan field is the second largest, having originally contained 75 billion barrels of recoverable oil. Two supergiants have been discovered in each of the United States (East Texas and Prudhoe Bay), the Soviet Union, Mexico and Libya. There is one in each of Algeria, Venezuela and China.

Almost 300 giant fields – those containing 500 million to 5 billion barrels of recoverable oil – account for another 30% of discovered recoverable crude. Approximately 1,000 additional fields each hold from 50 million to 500 million barrels of recoverable oil and represent about 15% of the world's known oil. Thus 95% of the known recoverable crude oil is contained in less than 5% of discovered oil fields.

This pattern of oil occurrence and more than a century of petroleum development have established two principles applying to global oil resources. First, most of the world's oil is contained in a few large fields, but most fields are small. Second, average field size and the quantity of oil found per unit of drilling decrease as exploration progresses. In any oil-producing region, the large fields tend to be discovered early in the cycle of oil production. (Riva, 1987c)

Riva estimates that the world's remaining recoverable, conventional crude oil (reserves plus undiscovered resources) amounts to roughly 1,200 billion barrels. At the current production rate of about 20 billion barrels/year, that quantity of oil would last for 50 years before output became limited by the resource base. Because this oil is so unevenly distributed, however, future oil availability must be considered on a country-by-country basis to determine when and where supply constraints will appear. Riva has assessed 29 producing countries, ranked by their original recoverable oil endowment. Assuming that proved reserves will be established in the future at the statistical rate observed in past development and that the reserves/production ratio will not fall below 9 in any of these countries (a value characteristic of producing regions in their declining years), he calculated the number of years that each country could sustain its 1986 level of oil production. These results are summarized in Table 2.