

Pipeline Challenge



Student Resource Pipeline Projects and Facts

Pipeline transport is a transportation of goods through a pipe. Most commonly, liquid and gases are sent, but pneumatic tubes that transport solid capsules using compressed air have also been used. As for gases and liquids, any chemically stable substance can be sent through a pipeline. Therefore sewage, slurry, and water pipelines exist; but arguably the most important are those transporting oil and natural gas.

◆ Baku-Tbilisi-Ceyhan Pipeline

The Baku-Tbilisi-Ceyhan pipeline (sometimes abbreviated as BTC pipeline) transports crude petroleum 1,776 km from the Azeri-Chirag-Guneshli oil field in the Caspian Sea to the Mediterranean Sea. The total length of the



pipeline in Azerbaijan is 440 km long, in Georgia it is 260 km long and in Turkey is 1076 km long. There are 8 pump stations through the pipeline route. The construction of the BTC pipeline was one of the biggest engineering projects of the last decade. It was constructed from 150,000 individual joints of line pipe, each measuring 12 m (39 ft) in length. It has a projected lifespan of 40 years, and when working at normal capacity, beginning in 2009, will transport 1 million barrels (160 000 m³) of oil per day. It has a capacity of 10 million barrels (1.6 million m³) of oil, which will flow through the pipeline at 2 m (6 ft) per second. The pipeline will supply approximately 1% of global demand.

◆ Trans-Alaska Pipeline System

The Trans-Alaska Pipeline System is a major U.S. oil pipeline connecting oil fields in northern Alaska to a sea port where the oil can be shipped to the Lower 48 states for refining. The main Trans-Alaska Pipeline runs north to south, almost 800 miles (1,300 km), from the Arctic Ocean at Prudhoe Bay, Alaska to the Gulf of Alaska at Valdez, Alaska, passing near several Alaskan towns. Construction of the pipeline presented significant challenges due to the remoteness of the terrain and the harshness of the environment it had to pass through. Between Arctic Alaska and Valdez, there were three mountain ranges, active fault lines, miles of unstable, boggy ground underlain with frost, and migration paths of caribou and moose. Since its completion in 1977, the pipeline has transported over 15 billion barrels (2.4 km³) of oil.

◆ West-East Gas Pipeline Project

The West-East Gas Pipeline is a 4,000-kilometers long pipeline, which runs from Lunnan in Xinjiang to Shanghai. The pipeline passes through 66 counties in the 10 provinces in China. The construction of the West-East Gas Pipeline started in 2002 and it was put into operation on 1 October 2004. The pipeline is owned and operated by the Natural Gas and Pipeline Company, subsidiary of PetroChina. The gas will be used for electricity production in the Yangtze River Delta area. There is a plan to replace use of coal by gas in Shanghai by 2010.