



The Papua New Guinea Liquefied Natural Gas Project (PNG LNG project) has enabled the commercialisation of gas reserves in the Southern Highlands and Western provinces of PNG by processing the gas and then transporting it via a 300 km pipeline to an LNG producing and exporting facility on the coast.

Alluvium was commissioned to identify the characteristics of the pipeline waterway crossing points and assess the level of risk to the pipeline at these locations. The study identified the risk to the pipe from fluvial processes by analysing existing datasets, identifying river crossings based on topographic maps, and assessing geomorphic and landform characteristics of the river crossing sites.

Field investigations to remote sites were undertaken to to i) confirm the outcomes of the preliminary assessments, including reconnaissance of the river and stream crossings and pipeline facility site locations selected during the desktop review, and geomorphological assessment of the crossing locations taking into consideration the potential for changes in channel geometry, scour and bank erosion; ii) collect additional data, and further screen the crossing locations to identify those river and stream crossings that could be susceptible to scour and/or channel migration and the pipeline facilities that could be susceptible to flooding; and iii) scope additional data collection including field surveys of channel morphology and bed sediment characteristics at the crossing locations identified as being susceptible to scour and/or channel migration and the facility locations vulnerable to flooding

Detailed site assessments and modelling was undertaken for sites identified as high risk including hydrological modelling; bed and bank material characterisation; hydraulic analyses of natural channels; scour, debris flow, meander migration; Comparative aerial photograph interpretation and analysis; and Sour, debris flow, meander migration, channel avulsion and flood inundation

The risk assessment led to recommendations for construction techniques tailored to the specific categories of waterway conditions identified.