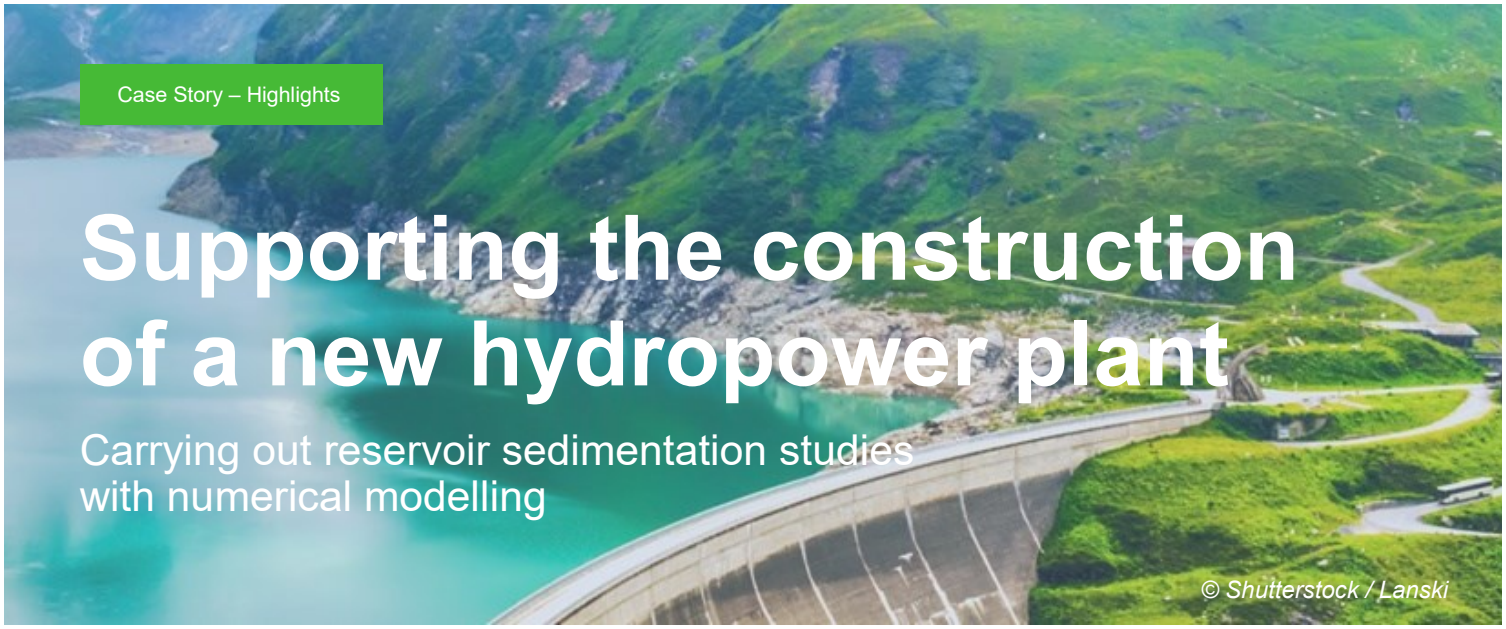

Case Story – Highlights

Supporting the construction of a new hydropower plant

Carrying out reservoir sedimentation studies with numerical modelling

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Offered an understanding of reservoir sedimentation patterns over the years

Provided an estimate of safe discharge levels

Finalised key levels (crest, intake, etc.) needed for successful construction

Challenge

To harness the country's hydropower resources, our client, a power corporation in Asia, commissioned DHI to carry out reservoir sedimentation studies for a proposed construction of a new hydropower plant. MIKE Powered by DHI software MIKE 11 (now MIKE HYDRO River) and MIKE 21C were used in the 1D and 2D modelling of the reservoir to ensure that the hydropower plant could operate optimally upon construction.

The new hydropower plant will be constructed on a river with an elevation of almost 800 m. With a depth of 850 m and length of 6.8 km, this was a major project that needed careful planning of the design and operation mechanisms. As such, it was critical for our client to get a comprehensive understanding of sediment characteristics – including its inflow, distribution and potential impact on the reservoir.

Solution

Using client data, a numerical modelling study of the reservoir conditions was carried out in MIKE 11 and MIKE 21C. The data was analysed, synthesised and validated, as well as corrected before using as input for the study. This ensured that results from the study were an accurate assessment of actual conditions of the reservoir. Our modelling helped to assess the loss of reservoir storage over time, determine the time taken to reach equilibrium level, identify the optimal flushing strategy as well as highlight the necessity of a separate desilting basin.

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