Background
The TBM-excavated twin headrace tunnels of the Neelum Jhelum Hydropower Project is experiencing stress-induced brittle failure and associated rockbursts. The need for accurate prediction of both the severity and locations of brittle failure is important in order to be prepared for future events, and for the design of an effective rock support system.

Objectives
Outline excavation method and major geological challenges that are being faced along the headrace tunnels.

• Carry out assessment on the rock burst / rock spalling conditions using semi-analytical methods.
• Conduct 2D & 3D numerical analysis and compare with results from analytical analysis.
• Critically evaluate rock support methodology used in the headrace tunnel based on stability analysis.