

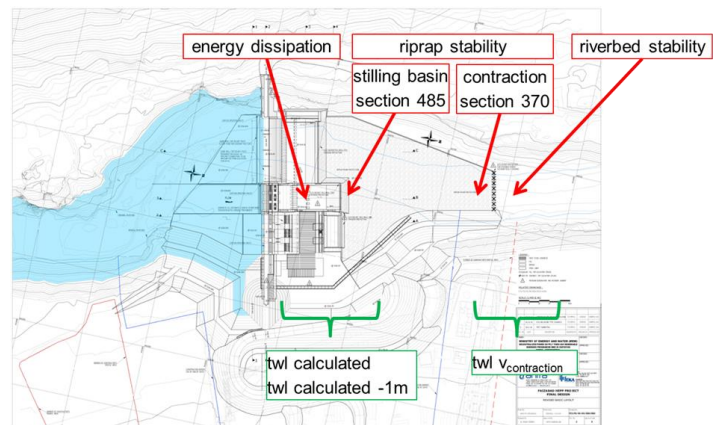
Physical model testing for stilling basin and riprap stability HEPP Faizabad (M 1:25)

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Situation and tasks

The planned HEPP Faizabad in the north east of Islamic Republic of Afghanistan consists of the following parts, from left to right in the direction of the flow:

- spillway (four bays, uncontrolled, ogee crested)
- bottom outlet (three bays as outflow structures and as sediment flushing devices)
- powerhouse (three intakes)



The spillway and the bottom outlet are followed downstream by a stilling basin followed by a riprap of 115 m length in a river contraction.

The main goals were to verify

- energy dissipation including the length and level of the bottom outlet stilling basin design, optimisation of the design of the bottom outlet stilling basin (chute blocks, baffle blocks, end sill) and the stability of riprap just below the end of stilling basin,
- the stability of the riprap at its end at the river contraction.

Different flood discharges between $< HQ_{50}$ and $> HQ_{1,000}$ as well as flushing scenarios were examined.

Model

The hydraulic model tests were done with a sectional model of the middle one of three bottom outlets including the half of the pier on each side of the bottom outlet (scale 1:25).

Results

Flushing scenarios were the most important loading cases for riprap stability which could be shown. The length of the stilling basin could be reduced and the configuration could be optimized by the tests.

