



## Operation and Maintenance of Hydro tunnels

**Nepal, 13<sup>th</sup> December 2018**

**Objective:** To provide a global overview of all the main issues regarding operation, maintenance and repair of tunnels, shafts and caverns in an underground hydroelectric complex.

### **Session 1: Performance criteria of an underground hydro plant – Feedback from experience**

09:00-09:15 Welcome and opening

09:15-10:00 Types of tunnel lining for hydro tunnels – advantages and disadvantages (F. Laigle)

10:00-10:45 Performance criteria of a hydro tunnel (M. Cadenelli)

*10:45-11:15 Coffee Break*

11:15-12:00 Introduction to the main structural disorders and defaults in hydro tunnels (F. Laigle)

12:00-12:45 Lessons learnt from previous accidents during operation (M. Cadenelli)

12:45-13:00 Discussion

*13:00-14:00 Lunch*

### **Session 2: Inspection and maintenance – Asset management**

14:00-14:45 Case Study: Waterproofing membrane under high hydraulic head (Carpi – M. Bacchelli)

14:45-16:00 Round table about Inspection, maintenance and repair issues

- Introduction to the topic (F. Laigle – M. Cadenelli)
- Exchange with the audience (with all experts)

16:00-16:30 Other case Studies

16:30-17:00 Discussion and closing