



REPORT OF TWO-DAY TRAINING ON TUNNEL DESIGN, CONSTRUCTION AND RISK MANAGEMENT

Introduction

Nepal Tunnelling Association (NTA) and ITACET Foundation jointly organised a 2-day training program on "Tunnel Design, Construction and Risk Management" 11-12 December 2012 in Kathmandu, Nepal. The training was supported by Independent Power Producers' Association, Nepal (IPPAN). More than 218 participants from Nepal, India, Korea and Australia had attended this training. The training was inaugurated by ITACET Foundation Vice President, Piergiorgio Grasso, and NTA President Dr. Sandip Shah. Dr. Harald Wagner provided greetings on behalf of International Tunnelling Association (ITA), while IPPAN Vice President Khadga Bahadur Bisht wished the participants successful training. NTA Vice President Dibya Raj Pant provided vote of thanks during the inauguration session. Prof. Jian Zhao was also present at the welcome session.

Participants

Participants from Nepal, India, Korea and Australia attended this training. Total attendants were 230.

Attendants	Number
Registered participants	211
Speakers	4
NTA & IPPAN	12
Sponsors & others	3



Photograph 01: Speakers, NTA and IPPAN EC members on the dais during the Inauguration session

Objectives

The main objective of this training was to train Engineers, Geologists and tunnel technicians working in the field of tunnelling on tunnel design, construction and risk management. Other objectives were:

- To learn worldwide tunnel design principles and methods
- To learn existing construction methods and technologies
- To learn to select suitable construction methods based on the ground conditions
- To learn ground improvement methods, ground monitoring and interpretation
- To learn ground water drainage and water tightness for underground structures
- To learn risk management methods and contracts to tackle uncertainties

Training sessions

The schedule of program and internationally renowned speakers were organised by ITACET Foundation and the overall management of the program was done by Nepal Tunnelling Association. Dr. Harald Wagner (Expert to ITA Executive Council) delivered lectures on principles of tunnel design, ground recognition, design stages and management by design intends to summarize the state of the art for both conventional and mechanized tunnelling in the first session of Day 1, Similarly in the Session II of Day 1, Professor, Jian Zhao (Professor of EPFL) introduced different tunnel construction methods and application based on the ground conditions. He highlighted on mechanised tunnelling and drill & blast

construction methods, Conventional Tunnelling Methods (NATM) and Other Modern Tunnelling Methods such as Shaft sinking, pipe jacking, other methods.

In session III Day 2, Mr. Felix Amberg (ITACET Foundation) gave lecture on the ground improvement common technologies used in soil and rock, monitoring systems and importance of predicting ground behaviour; and waterproofing technologies, their application, benefits as well as shortcomings. Mr. Piergiorgio Grasso (ITACET Foundation Vice President) delivered lecture on risk management for deep and long tunnel. He highlighted on identification of risk, risk management plan, mitigations measures, monitoring and contractual aspects with case studies.



Photographs 2: Speakers giving lectures



Photographs 3: View of the training participants

Benefits

All participants benefited to enhance their knowledge through

- Internationally renowned experts' presentations and discussions.
- Presentations on latest methods and techniques on tunnel design.
- Latest constructions methods and technologies and able to select suitable methods to suite geological condition.
- Participants were also taught risk management to handle uncertainties in design and construction.

- It is expected that after attending this training program, the participants will have the know-how to some extent on tunnel design, construction methods and risk management.
- Certificate of appreciation was distributed to all participants

Token of appreciation and certificate distribution

NTA distributed token of appreciation a carved wooden window to all speakers and sponsors. Similarly, certificate of participation was distributed to all participants.



Photographs 4: Distribution of Token of appreciation to speakers



Photographs 5: Distribution of certificates to participants

Conclusions

Two days training on Tunnel Design, Construction and Risk Management was successfully organised by NTA and ITACET Foundation. Total 218 participants from Nepal, India, Korea and Australia attended the training. All participants actively participated in the training. The feedback from the participants was positive and they have expected more such trainings in the near future.

Sponsors

NTA appreciates the support of ITACET Foundation for conducting this training in Nepal, and also appreciates the generous support of the Royal Norwegian Embassy, The World Bank and Robbins India for their financial support to organise this training successfully.