

May 9-12
Kyoto-Japan
2017



2nd International Workshop on **Sediment Bypass Tunnels**

A short report on the 2nd International Workshop on Sediment Bypass
Tunnels

-Sharing concepts and techniques among Switzerland, Japan, Taiwan, and
other SBT-leading countries-

The 2nd International Workshop on Sediment Bypass Tunnels (SBT) was held May 9th to 12th 2017 at Uji Campus, Kyoto University, Japan (1st workshop: ETH Zurich, Switzerland, 2015). The workshop was organized by Water Resources Research Center, DPRI, Kyoto University (Chair: Tetsuya Sumi), with VAW ETH Zurich and National Taiwan University as co-organizer, sponsored by Japanese Ministry of Land, Infrastructure, Transport, and Tourism (MLIT), Nagano Prefecture, Kansai Electric Power Company, Inc., and financial supported by several companies and foundations. More than 170 people (31 from outside Japan) from 9 countries (Austria, China, Indonesia, Japan, Switzerland, Sudan, Taiwan, USA, and Vietnam) attended. We had meeting on 9th and 10th at Obaku Plaza Hall in the Uji campus, and study tour (41 participants) visiting 3 dams with SBT in Nagano Prefecture from evening of 10th to 12th. As a pre-workshop tour, core members of SBT committee were visited Kobe City and Nunobiki-Gohonmatsu Dam, which is one of the oldest dams with SBT in the world constructed more than 100 years ago.

In the meeting, we had two keynote lectures (Dr. Gorge W. Annandale from US, Dr. Chien-Hsin Lai from Taiwan) followed by 27 oral and 12 poster presentations on the topics of SBTs in the world, upstream aspect, tunnel, downstream aspect, and operation. In the first keynote, importance of sediment management on the reservoir sustainability, required developments in techniques and strategies of SBT and other measures, and future issues related to climate change and reservoir sedimentation were shown with an idea of ZEN. In the second keynote, severe sedimentation as present reservoir status in Taiwan after earthquake and typhoons, and three new SBT attractive projects of increasing reservoir storage and discharge capacity were shown.

Presentations included historically initiative SBTs in Kobe, international comparisons of SBT characteristics, sediment bypass system in Indonesia, prediction methods of water and sediment inflow from upstream, sediment dynamic model for the prediction of invert abrasion, developments in monitoring of sediment transport through SBT, recoveries of downstream geomorphology and ecosystem by sediment supply, DNA

metabarcoding as a new technique for environment evaluation, ongoing projects (plan, operation, monitoring) of visiting SBTs in Nagano.

Exchanges and discussion of idea, experience and techniques were done also for poster presentation and company exhibition during lunch and coffee breaks. Discussion through this workshop helped deeper understanding of SBT since the last workshop, while revealed several issues to be solved including upstream-downstream linkage and economic evaluation of SBT projects in a long-term dam redevelopment. After the meeting on 9th we move to Kizakura (famous sake company) in Fushimi area of Kyoto City and had welcome reception. Participants enjoyed sake brewing system that developed in spring-water-rich location of Kyoto and traditional culture of Kyoto, old capital of Japan.

In the study tour, we stayed two nights in Nagano and visited SBT facilities of Matsukawa, Koshiibu, and Miwa dams and sabo works in the Mibu River upstream. We took time to see tunnel inlet and outlet of each dam, drove through the 4 km SBT of Koshiibu Dam by bus, devices to transport fine materials in the Matsukawa, lining for abrasion and sediment monitoring system of the Koshiibu, upstream stockyard system to increase sediment bypass ability in the Miwa, and sabo works and check dams that prevent sediment inflow to the Miwa Dam. An environmental monitoring survey was also demonstrated in the downstream of Miwa Dam.

Participants interested in variable topics including effects of each facility, evaluation of sediment budget, determination of target grain size for transportation, techniques of abrasion countermeasures, impact response of downstream environment. Thanks to a good weather during the tour, participants also enjoyed nature and a spring-season view of mountains. Although SBT is a specific field of investigation, discussion was expanded to future-promising broader themes. We confirmed our continuous international cooperation and importance of translating our SBT knowledge to solve sedimentation issues of rivers and dams worldwide. This workshop was finished with great success, and we will continue to cooperate to have the 3rd International Workshop on Sediment Bypass Tunnels in Taiwan 2019.

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Participants of the meeting



Keynote



Discussion



Company exhibition



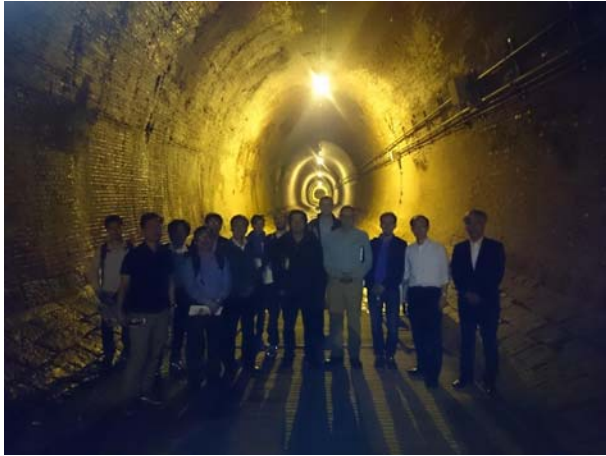
Kyoto culture in reception



Study tour at SBT outlet of Miwa



Miwa upstream with South Japan Alps



Pre-workshop tour (Minatogawa tunnel)



Unlined tunnel of Nunobiki-Gohonmatsu constructed more than 100 year ago.



Field survey of environment at downstream site of Miwa.



SBT cup as a souvenir of workshop