

## COMPLETION REPORT

### **The Influence of Japan Transport Safety Board(JTSB) on Railway Safety: A Comparative Study of Railway Safety Supervision between Japan and Taiwan**

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Safety is the most important concern for railway agencies and companies worldwide. The main purpose of this study is to perform a comparative study of the safety supervision structure in the railway sector between Japan and Taiwan. One of the most distinct difference in the structure between Japan and Taiwan is the establishment of the Japan Transport Safety Board (JTSB) investigating accidents to clarify the causes of accidents/incidents in order to prevent recurrence. This comparative case study seeks to improve the understanding of the functions and impacts from JTSB on railway safety to provide lessons learned for Taiwan.

This research was carried out by reviewing several important history of accidents in railways and countermeasures to realize safety in Japan and in Taiwan. The researcher then made the first oversee business trip to Japan in Summer 2017 to interview with Prof. Akira MATSUMOTO at Nihon University, former Chairman of the Railway Subcommittee in JTSB, and Prof. Norio TOMII at Chiba Institute of Technology, experts in railway operations and safety, followed by a visit to JTSB to meet Dr. Fumio OKUMURA, Chairman of the Railway Subcommittee in JTSB. During this trip, the researcher established the basic understanding about the supervision structure on railway safety in Japan, and background and functions of the JTSB. The researcher also made the second trip to Japan in December to attend the J-RAIL 2017 seminar at Niigata for technical background behind railway safety and accidents. Besides the seminar, the researcher also visited several accident sites, including JR Uetsu Line where the 2005 Uetsu Line Accident happened and Sendai station where the 2011 Shinkansen train derailment took place. The visit to the Tohoku area in winter time also helps the researcher to understand how tough the environment is for winter operations in Tohoku area. A third visit to Japan was conducted in early 2018 in order to understand the perspectives from the operators and additional visits to the accident sites. The researcher visited Prof. Seiji ABE at Kansai University, expert in railway safety and accident investigation, and Mr. Atsushi KAWAI, Director of Safety Research Institute of JR West. This interview helps the researcher to further comprehend the positive impact from the JTSB investigations to railway safety in Japan. Besides the interview, the researcher also visited quite a few accidents sites during this trip, including the sites for 1962 Mikawashima train crash, 1963 Tsurumi rail accident, and 2000 Naka-Meguro derailment in the Tokyo area, 2016 Geibi Line Derailment in Hiroshima area, 2017 Hakubi Line derailment in Okayama area, and the distressful 2005 Fukuchiyama accident site in Osaka area.

Through this study, it is found that the establishment of the governmental accident investigation organization (such as ARAIC and JTTSB) is one of the most important keys to improve railway safety. Although independence may be a concern, having JTTSB underneath MLIT can facilitate hiring appropriate investigators, and accelerate the implementation of the recommendations from the investigations. In addition, through the cooperative framework, the JTTSB is able to obtain the technical support from organizations such as the Railway Technical Research Institute (RTRI), National Traffic Safety and Environment Laboratory (NTSEL), etc.. In Taiwan, an independent railway accident investigation body is still missing; therefore, it is recommended to establish the official accident investigation body with technical support organizations to improve the railway safety as soon as possible.

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