6. A Study on the Reuse of Concrete Debris Produced During an Earthquake as Recycled Concrete

Katsuhide Morimoto, Takashi Misawa, Tetsuya Hironaka

With the lapse of more than three years since the Great East Japan Earthquake, emphasis is shifting from restoration to reconstruction in Iwate and Miyagi Prefectures. The many attempts are being made to reuse disaster waste. In Fukushima Prefecture, on the other hand, reconstruction has been delayed because of the accidents at nuclear plants that occurred during the earthquake. In the process of disposal of disaster waste toward reconstruction, how to dispose of concrete contaminated with radioactive materials is an issue. Against the above background, a study was made to reuse concrete debris, a kind of disaster waste, as re-birth concrete that had already been developed. Verification tests were conducted in order to apply concrete debris to port and harbor structures. Applicability was verified by checking mix proportions, ease of construction and quality. In order to verify that concrete debris contaminated with radioactive materials could be recycled while managing it safely, concrete blocks were produced for testing in special decontaminated areas. Changes in radiation dose were grasped in the process of manufacturing recycled concrete and the reduction in radiation dose owing to the production of recycled concrete was verified. The practicability of effectively using concrete debris in affected areas was verified based on the knowledge obtained in the tests concerning the mix proportions and radiation dose of recycled concrete.

Key words: recycled concrete, dismantling, slug, radioactive materials, radiation dose, effective use