

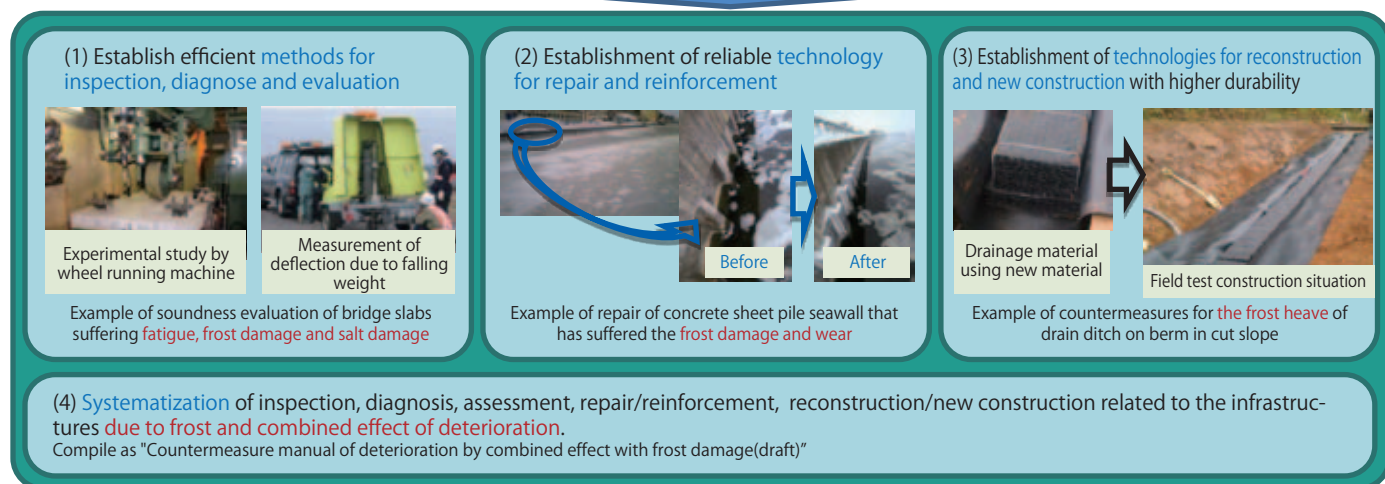
(8) Research on the maintenance and reconstruction of the infrastructure subject to frost damage and combined effect of deterioration

Research Summary

Research Period: FY2016-2021
Program leader: Director of Cold-Region Maintenance Engineering Research Group



Countermeasures for frost damage/ deterioration by combined effect are undeveloped



Propose application in standards and disseminate research results through technical guidance

Prolonging the service life of infrastructures in the snowy and cold regions and ensure safety/security

For the aging of public infrastructure, we need to understand the conditions of deterioration according to various effects such as environmental conditions and make a plan of maintenance and renewal based on the importance of facilities. We also need to establish a series of systematic engineering. Particularly for the public infrastructure in the snowy and cold regions, frost damages and deterioration by combined effect such as low temperature, snow, frost, frost heave, freeze-thaw, snowmelt water, salt occur due to harsh environments. However, countermeasures for these deterioration caused by combined effect has not fully developed yet.

For bridges, rivers and coast of concrete structures, paving, heave cut slope, in this research we develop structure-specific technology and common technology targeted at frost damage and its deterioration by combined effect/damage mechanism with related to the following 4 items;

- (1) Establishment of efficient inspection, diagnosis and evaluation methods of frost damage/deterioration by combined effect
- (2) Establishment of a reliable repair/reinforcement technology for frost damage/deterioration by combined effect
- (3) Establishment of technology of durable reconstruction and new construction for frost damage/deterioration by combined effect
- (4) Systematization of inspection, diagnosis, assessment, repair/reinforcement, reconstruction/new construction related to infrastructures due to frost damage/deterioration by combined effect.

We support to help maximize and extend the life of infrastructures in the snowy and cold environment by applying these technologies to the infrastructure, which will contribute to maintenance, development and utilization of the land structure to support the safety and security and economic growth.