



Infrastructure Condition in Japan and a New R&D Program: “Infrastructure maintenance, renovation and management”

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ABSTRACT

The economic sustainability, security and well-being of a nation depend heavily on the reliable functioning of infrastructure. After five decades of development, Japanese stocks of infrastructure have reached enormous amount of over US\$7000 billion. Built between the 1960s and 1980s, majority of infrastructure have stood for three to four decades. Most works on highways started in late 1960s, bridges in early 1970s, dams and harbors in early 1980s.

Some of the infrastructures are not in good condition now. Demand for rapid availability of infrastructure in the past might have led to poor design; poor construction quality or structures built using undeveloped technology. Some of bridges are deteriorating due to increasing traffic volumes, the use of anti-freezing salts and humid environment. The collapse of Sasago Tunnel on the Chuo Expressway near Tokyo in 2012 has brought public attention to the issue of infrastructure degradation and led to doubts about their current quality and safety.

Realizing this condition, Japanese government decided to invest on research and development for efficient infrastructure management. A new R&D program named “Infrastructure maintenance, renovation and management” was launched in 2013 under the Japanese Council of Science, Technology and Innovation (CSTI)’s Strategic Innovation Program (SIP). The 5-years program covers various subjects with key technologies in condition assessment, non-destructive testing, monitoring and robotics; long-term performance prediction, development of high-quality durable material for repair and replacement, and infrastructure management using advanced information and communication technologies (ICT). The program consists of over 60 research projects involving universities, research institutes and industries. This initiative is expected to prevent further accidents and setting an example for efficient infrastructure maintenance by reducing the burden of maintenance works and cost.

KEYWORDS: *infrastructure management, condition assessment, long-term performance prediction*