Practical Use of Traditional Civil Engineering Construction Methods in Preservation and Improvement of Historic Landscape

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1. Introduction

The Ministry of Land, Infrastructure, Transport and Tourism has been supporting the initiatives in the historical town planning across the nation, since the "Law on the Preservation and Improvement of Historic Landscape in a Region" (abbrev: Historical Town Planning Law) was approved in 2008. At NILIM, in order to further technical support in the operative improvement of the Historical Town Planning Law, the Landscape and Ecology Division has been involved in 1) design of the progress management/evaluation system of the Plan for the Preservation and Improvement of Historic Landscape, 2) technical guidance about the preservation and improvement of historic landscape and 3) study on the preservation of historic landscape in disaster-stricken areas.

In recent years, while infrastructure facilities of historic interest have been evaluated from various points of view including community development, their maintenance and utilization have been left as an outstanding issue. As well, even with regards to ordinary infrastructure facilities which are not cultural assets in the narrow sense of the word, there is a need for the appropriate construction method to be selected according to their own historic value and that of their surroundings, in order for it to be effectively tied into the community development. Concerning urban infrastructure facilities in historic districts, efforts are being made to compile information about the historical and regional developments of traditional civil engineering construction methods. At the same time, we try to grasp the actual situation of their application in the restoration/reconstruction works in the cities authorized by the Historical Town Planning Law.

2. Study on traditional construction methods

We compiled information pertaining to the historical and regional developments of traditional civil engineering construction methods used in pavement, masonry, walls, fences, irrigation canals and brick structure through document study, expert interviews and field works that took place in West Japan fiscal 2013, and East Japan 2014 respectively. Regarding the distinct regional construction methods dependent to climate properties and local materials, we are accumulating/arranging the basic information about their technical characteristics and their change with the times that will provide reference points for the authenticity of present day restoration/reconstruction works.

At the same time, we are also investigating/analyzing means to implement restoration/reconstruction of these infrastructure facilities that take into account not only modern and practical needs, but also their locality. For restoration/reconstruction of infrastructure facilities of historic interest in the cities authorized by the Historical Town Planning Law, we are analyzing the selection process of construction methods, the characteristics of the adopted construction method and the effect of restoration/reconstruction works on historic value of the city. Furthermore, to support the inheritance of the skills which form the basis of traditional construction methods, we are investigating/analyzing public schools such as the Kanazawa Institute of Traditional Crafts, and other private learning places.

Photo (left): Stone wall restoration of Sendai Castle, (right): Clay wall restoration with straw matting by students of the Kanazawa Institute of Traditional Crafts

3. Establishment of a database

As we continue our investigation research into traditional civil engineering construction methods, we are simultaneously establishing a database to store various information related to historical town planning initiatives of the authorized cities. We aim to utilize the database to make the historic town planning widely known by the general public and to provide useful information to tourism-related businesses, as well as to share the

information amongst the authorized cities' officials. We will release it on the NILIM homepage so that the information may be attainable to both the historic town planning personnel and the public.

(Reference)
Yusuke Kimura, others: Utilization method of traditional techniques on historical infrastructure: municipalities' efforts based on approved plans for the maintenance and improvement of historic landscape - Civil Engineering Journal, Vol. 57, No. 1, pp. 42-45, 2015.