

Traditional technique : Fascine mattress

Category : Revetment foot protection Sicle : 19th century

River : Shinanogawa (Shinano River), etc.

Site : Mainly in the Hokuriku region (incl. Niigata Pref.)



Mountain from which branches and sticks are taken



Young trees growing from stumps



Weaving a fascine mattress



Lifting a fascine mattress in place (the next step being to put stones into the mattress)

Source: Fascine Mattress Method Made Easy: Explanations and Examples (in Japanese), February 1999, Fascine Mattress Method Editorial Committee (supervised by the River Division, Hokuriku Regional Construction Bureau)

Description:

The fascine mattress method is suitable for use in Japan, where large rocks are not readily available but trees are abundant. In this method, a mattress woven with branches and sticks of various trees is stuffed with stones. This method, which is said to have been introduced by Jhannis de Rijke and other Dutch engineers in the Meiji Period, is still in use mainly in the Hokuriku region. The fascine mattress method uses hard and tough branches and sticks cut from seven- to ten-year-old saplings of such common broadleaf trees as nara (a kind of oak), kuri (Japanese chestnut), kashi (a kind of oak), kunugi (chestnut oak) and kobushi (a kind of magnolia). Since fascines are natural materials, they can be supplied in a sustainable way if mountains that supply branches and sticks are properly managed and demand for fascines is not too high. The fascine mattress method has a number of environmental advantages including effective use of forest resources, contribution to the solution of carbon dioxide problems and the naturalization of the land-water interface. Work is currently under way to develop guidelines for partially mechanized construction and design.