The History of the Development of "Waterfronts": Causes and Development of Construction Methods for Horiage (Dug Up-Style) Rice Fields in the Middle Edo Period

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From the end of World War II through the 1960s and 1970s, horiage (Dug up-style) rice fields called horita or horiageta were found in low, swampy areas of Japan. Horiage is a kind of rice-field development technique that creates rice fields by digging out low, damp ground or mud and earth from the bottom of a lake and piling it up, while at the same time ensuring irrigation by using the ditches created by the digging (called horitsubure). In order to cultivate waterside land surrounding ponds, marshes, and rivers that was too low and damp, mud and earth were dug out and piled up, while the dug out areas were dug deeper and sank below water's surface. Thus the water areas and the rice fields formed a unique shape that resembled a comb. Naturally, farming became unfeasible in areas that were underwater, but the rice field areas were able to be kept above sea level, which made it possible to drain off excess water.

The history of the distribution and development of the methods for constructing horiage-style rice fields shows us two types of construction methods; one in which the rice fields are formed by raising up the earth at the bottom of shallow swamps and marshes, and the other a stabilized form in which existing rice fields are maintained, even if that means digging up other rice fields that have already been raised to ground level. This difference can be thought of as a stage of development of "waterfronts." With the former type, people advanced to the "waterfronts" and developed the low, swampy lands surrounding ponds and marshes for the purpose of creating as much land for rice fields as possible. This was done at the very beginning when rice fields were first being developed, while the latter type is at the next stage, where the "waterfronts" had already been turned into rice fields. The purpose was to maintain particular rice fields in an environment that was likely to return to its low, swampy state. While these two types may be treated as common techniques used for turning low, swampy environments into rice fields, the motives that led people to employ these different techniques are significantly different. We cannot determine during which period the former type was used for first time, but we know that although the emergence of the latter type was undeniably in the medieval period, it came into active use in the mid modern age. It is sig-
significant that this is the same period as when new rice fields were being developed in low, swampy areas.