A Contemporary Vision of Land Use Based on the Natural Environment and Historical Remains of Heijokyo

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Visions of Urbanity in the Historical Cities of Japan

The modernization of most of the cities in Japan that contain historical remains has been based on the concept of protection and conservation. For example, the trend of preserving the ancient city of Kamakura, which started in the 1970s when active housing development began, is ongoing. Protection and conservation form the basis for developing not only ancient cities, but also cities of any size that contain traditional streets or historical remains. In the 1960s, when attempts were first made at dynamic development of cities while respecting the historical remains that they contained, architects proposed the Kyoto Plan (1963) for the Kyoto Basin and the Nara Plan (1965) for Nara. The underlying aim of these ideas was to show that blocks of modern buildings and historical districts could coexist, by dividing their roles. Both plans regarded the surroundings and environment that had existed for a certain period of time in the past as being central to the future images of the cities. With such a background, this study aims to create a vision for a future city by searching for contemporary significance in the history of the city, from its birth to the present.

Construction of Heijokyo as a Starting Point

In this context, Heijokyo is a good subject for investigation: it was constructed in 710 but remained in existence even after the capital was relocated to Heiankyo. The construction of a city in the northern end of Nara Basin to imitate the cities that then existed in China was one of the biggest construction projects ever to be attempted at that time. The area is almost flat, although there is a slight downward slope from the northern end of the Nara Basin toward Heijokyo in the south. The project, which involved constructing a number of streets in a grid pattern, diverting the natural courses of rivers, and excavating canals to run from east to west, would have had a great impact on the people of the time, who lived by adapting to the natural environment. The changes would have destabilized the balance between nature and the life of the people, but this imbalance was suppressed, to some extent, by the power of the authorities. Obviously, the actual landform and water system were different from the conceptual plan of the street pattern, but the difference was regarded as something trivial, and was minimized by adjusting micro topography. Thus, the grid of streets, as an artificial pattern drawn on a large area of the capital, had a strong constraining effect and was dominant in controlling the landscape. From this background, the construction of Heijokyo is adopted as the starting point for a vision of the city that
is developed in the processes through which the city has been evolving.

The Mediation Period After the Relocation of the Capital

After the capital was relocated to Nagaokakyo in 784 CE, the old capital lost its power to control the unbalanced relationship between nature and the man-made structures, and nature increasingly began to dominate the man-made environment. Records of flooding along diverted rivers, such as the Saho and Akishino rivers, illustrate this shift. Other than in some villages and temples, agricultural land use gradually spread back into the once-urban districts of the old capital. The process would have involved taking measures against flooding by the rivers, adapting to other natural phenomena, and learning how to use the land for farming, and occurred over a long period of time. The grid pattern existing within the area would have constrained the pattern of land use for farming. Streets were probably built lower than residential plots, and wide side-ditches are known to have existed: these would have affected the drainage system. The canal network, which used the side ditches, would have determined the pattern of farming, particularly the cultivation of rice paddies. Thus, the grid pattern of the street became reflected in the later agricultural landscape. A long period of time, such as that which occurred between the relocation of the medieval capital and modern times and contemporary age, was probably necessary to moderate the rebound from the large-scale modification of the natural environment.

Encroachment of the Surface by Modern Urbanization

Immediately before the tide of modern urbanization reached the northern part of the Nara Basin, a unique landscape spread across the Heijokyo area, with the farmland arranged in a grid pattern of streets in the old capital city. Urbanization of the northern part of the Nara Basin, including the old capital, accelerated after World War II and involved the construction of items of city infrastructure, such as railways and primary roads, to improve the convenience of the daily life of the people. The construction of such linear structures would not have caused significant damages to the basic infrastructure of nature and manmade environment, which was spread over land surface in two dimensions. The construction possibly facilitated the use of the land, which was originally designed as a residential area in terms of both street arrangement and land conditions, to be converted from farmland to a modern city. The long period of time that was used by people to adapt to the natural phenomena could have increased the potential of the area as a space for people to live in and have produced an environment that was not created by controlling nature by modern technology. Thus, the expansion of urban districts in the city was easily achieved merely by replacing farmlands with residential and urban districts. Since the urbanization was performed in a piecewise scattered manner, a number of farmland areas remain...
within the mosaic pattern. The modern urbanization of the Heijokyo area is still in the stage of urban districts encroaching farmlands, and has progressed through the formation of a balance between nature and artificial structures, maintaining the underlying structure of the old grid pattern.

**Contemporary Vision of Land Use in the Heijokyo Area**

Since the Heijokyo area has the geographical advantage of being located in the middle of the Kinki metropolitan area, urbanization is likely to continue in the near future, even if it would be slow. On the other hand, as a suburb of large cities, it faces diverse topics, such as the need to reduce in its size and to be compact to adapt to a decrease in population, the need to construct a sustainable society in which the products to be consumed within the region is also produced within the region, the need to safeguard of the population by taking comprehensive flood-control measures, and need to preserve biological diversity to maintain ecological stability. When the history of the area is considered, there are several possible development alternatives that could preserve and utilize the large-scale historical remains within the region: these alternatives are described below.

(1) The Heijokyo as an Agro-Residential Area

In Heijokyo, which was designed as a capital city and later used for agriculture, it would be natural for residences and farmland to coexist harmoniously. The size of the urban center of the Keihanshin area is expected to decrease, but the value of suburban residential districts that is close to a natural environment will remain unchanged. The population of the area will provide a market for agricultural products produced by urban farms within the region, some Hydraulic the residents themselves may be involved in farming. The infrastructure that regulates such a mixed development of farmland and residential areas will reflect the underlying historical grid-like pattern of streets.

(2) Contemporary Restoration of the some Hydraulic System

Rivers and canals were essential in moderating the relationship between natural phenomena and human activities after the capital had been relocated from Heijokyo. In particular, those that were built to match the grid of streets and land lots have functioned as a system to supply water to farmlands and to enable the city to recover quickly from damage by floods. The hydraulic system can function as a comprehensive safety system for supplying agricultural water and controlling floods when it is incorporated in a farming and residential environment. An ecological network could be developed by connecting farmlands and the canal network with the natural environment over large areas, and would contribute to the preservation of biological diversity.
(3) Sujakuoji Street as an Axis of the Natural Environment

In Heijokyo, Sujakuoji Street once symbolized, in terms of space, the power of the authority. Replacing the symbolism in today's environment is very important as a contemporary expression of the historical remain. This could be achieved by regarding the street as an extension of the fundamental structure of natural environment, and this would symbolize the entire image of the landscape consisting of the farming and residential area and the canal system. This environmental axis would be an open space, like Sujakuoji as a street during the Heijokyo period, and the symbolism would be inherent to the shape. The space would be connected to the canal system of the entire region and would serve as a basin for flood retaining; it would also be a home to a range of plant and animal species.

**Historical Landscape as Frottage**

The ideas for land use described here are attempts to develop a range of options for preserving and utilizing historical remains, and to propose a concept that could serve as an alternative to the widely used restoration methods. The historical landscape could serve as *frottage*. *Frottage* is a graphics technique that involves placing a piece of paper on a textured surface and rubbing the paper's surface with, for example, a pencil to show the underlying pattern. In this analogy, the grid system of Heijokyo is equivalent to the texture of the base, the land itself is the paper, and activities undertaken on the land that reflect the values of each period correspond to the act of rubbing with a pencil. Unlike the case of restoration projects, the resultant grid will not be the original grid constructed during the Heijokyo period. However, the ambiguous outlines that manifest the area's long history will stimulate people's imagination and will provide residents and visitors with a continuing opportunity to experience richness of the spaces and environment.

1 Cities defined under the "Special Act on the Conservation of Historic Natural Features in Cities" (1966, No. 1).
2 The authors refer to studies by Shimizu Shigeatsu (the National Research Institute for Cultural Properties) in relation to these points.
3 There should be the differences between the grid system in the capital and the subdivisions of farmland, which exceed the numerical differences in the plot area.
Bird's eye view of Heijokyo: Landscape pattern based on Jobo Grid appears in mixed land use of agriculture and housing.

Topographical feature of Hijokyo: The entire area gently slopes down toward south. Courtesy Hajime Ishikawa