

The study of changes in the land use of the waterside lands in the middle basin of the Arakawa River and the associated factors

*矢澤 優理子¹

*Yazawa Yuriko¹

1. 千葉大学大学院園芸学研究科

1. Chiba University

1.Introduction

In the river area, some workings of people were done in the old day. But after the constitution of River Act, river in Japan have placed under management, and those workings have been set a limit.

Recently there are some action to make use of river for community development. I think to clear the history of river will help that we can understand clearly the character of the river in community, and we can tend to easily utilize the river for community development. Therefore, we focused on the change of land use as the history of use of river, to elucidate changes in the land use of river waterside lands and associated factors in this study.

2.Research objectives and methods

In this study, the objective is to elucidate changes in the land use of river waterside lands and associated factors.

The target area is in the upstream section of the Arakawa River, flows through Saitama Prefecture and Tokyo Metropolis (the north edge is Arakawaohashi Bridge and the south edge is Tohoku Line Land Bridge, Figure 1), which is undergoing repair work directly supervised by the federal government. The target period was from the last part of 1880s, when is the immediately before the large-scale river modification on the Arakawa River, to the present time. We used 1:20,000 Quick Mastery Maps made by imperial military organization and 1:25,000 topographic maps made by geographical information authority of Japan to survey changes in the land use of the target area. The way of survey is that the trend of in the land use of the target area quantitatively analyzed by calculating the area of each land use in GIS, using land use the map colored according to the map symbol or vegetation map made by the Ministry of the Environment. After that, we cleared the factors causing the changes of land use by some local documents, etc.

3.Results and discussion

Results of the survey showed that the waterside lands along the Arakawa River, i.e., the target area of this study, were influenced by social background, leading to changes in land use(Figure2).

The land use in the target area was used before and immediately after the World War II, as a production site for major crops, this is because there is a vast extent of land. So in the target area, waste land was brought under cultivation and mulberry fields (the local industry) were converted to fields for other crops, by federal or prefectural projection on increased food production because there is little food.

With the enactment of the New River Act in 1964, the public nature of rivers was enhanced. With the impact of the Tokyo Olympics held in the same year, the waterside land was considered a place for citizens to physically train.

In addition, another land use change also happened, settlements in the waterside land were relocated to protected low land account for the flood.

As such, various facilities including sports fields, golf courses, and green spaces were introduced to the waterside lands. Furthermore, the waterside lands of the Arakawa River gained an additional role as detention basins.

Though the waterside lands of the Arakawa River maintain a large area of cultivated land today, its nature, as the past agricultural land has changed, has become more of an open public space.

As shown, the social position of the waterside lands of the Arakawa River has changed, from an agriculture-promotion area to recreational sites, through a societal background of changes in federal administration and legal systems and improvements via large-scale river modification.

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