GIS-Based Analysis of Sense of Place
- A Case of Fujisawa City -

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Introduction

Since Kevin Lynch (1960) studied on image of the city, the study on image of spaces have increased gradually. In 1990, YiFu Tuan indicated a concept of Topophilia, which there are strong emotional relationships between spaces and people. As a recent study, Jin O Kwon (2001) studied on the impact of regional topography on Korean people. He stated in the study, spaces such as physical environment and man-made constructions impact on people who live there. In spite of that, current regional planning has not well taken sense of place into consideration. Therefore, it is crucial important to grasp sense of place and to regional plan based on residents participate. This study examines to clarify spaces where impress our lives and relate to various kinds of sense of place, using spatial analysis of GIS. The significances of the study are, to spatially represent invisible psychological quantities using GIS, and to give information about the solutions for regional issues and conservative areas by identifying sense of place.

Methodology

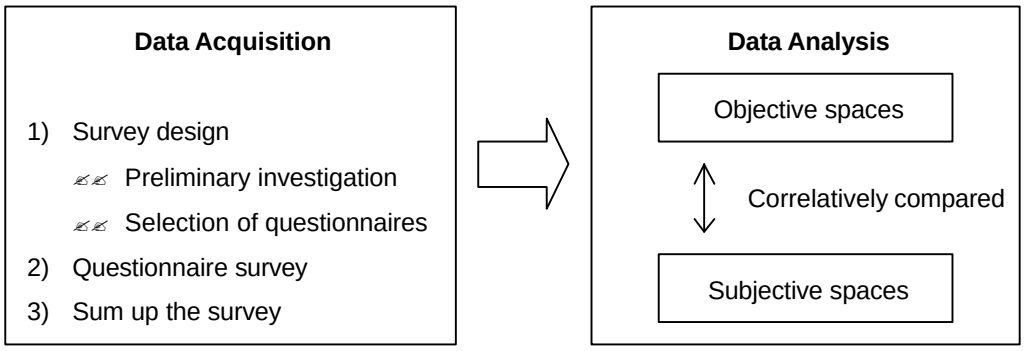

Figure.1: The Flow of the Study

The study is divided into two big parts (Figure.1). The first data acquisition part is the questionnaire survey including the survey design, the questionnaire survey, and the sum-up survey. In the next data analysis part, senses of places based on the questionnaire survey are represented as distribution maps, and then the sense of place (subjective spaces) maps are correlatively compared with real world including physical environment and man-made constructions (objective spaces).

Data Acquisition

Sense of place data were acquired by three steps, which were survey design, questionnaire survey, and sum up the survey. The target region was Fujisawa City, Kanagawa prefecture, Japan, and the target respondents were the people who live, work, and go to school there.

First, in order to obtain sense of place data in the questionnaire survey by spatial expression adjectives with five-level evaluation, various adjectives were collected by past studies, books, hearings, as a preliminary investigation. After that, the 24 adjectives were selected from the data collection. Also, other questionnaires including subjects' attribute data were set up. Second, in the questionnaire survey, locations of sense of place data were obtained by free-writings and map-drawings in the questionnaire survey. The questionnaires include the 24 spatial expression adjectives by five-level evaluation to the sense of place at the same time.

Third, the locations of sense of place data for each subject were mapped by using GIS, to show the spatial relationships among the places where people feel specially something. The 24 adjective qualitative data were changed in quantitative data to create each 24 adjectives map and each factor map by factor analysis.

Spatial Analysis

The data were spatially analyzed by three kinds of sense of place maps, which were based on the frequency, each 24 adjective, and each factor by GIS union function. Also, these sense of place maps were compared with the map that was Fujisawa City in the real world map including physical environment and man-made constructions. In the study, land use, green distribution, areas some distanced in rivers, visible areas for Mt. Fuji, visible areas for sea and Enoshima, as some of the real world map. Enoshima, a small resort island in the coast of Fujisawa City, is a symbol of the city, and many of the respondents actually answered the island as the place they have strong image in the region.

First, senses of places for the frequency was simply mapped, and the map showed the places which how many people had strong impression in. Second, senses of places for each 24

adjective were mapped based on the quantitative data, and the maps showed the places,

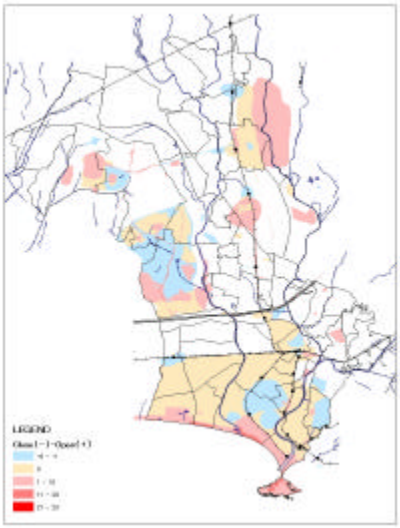

Figure.3: Senses of Fujisawa – Close"

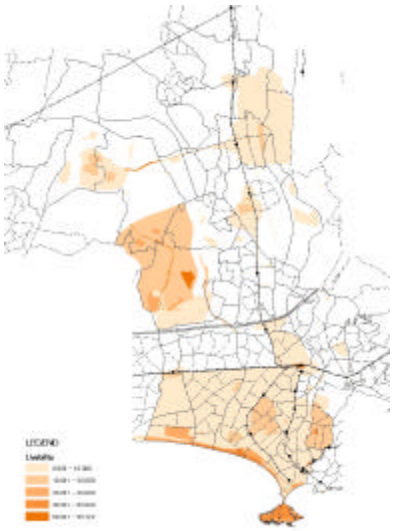

Figure.4: Senses of Fujisawa for Livability "Open

Figure.5: Visible Areas for Sea and Enoshima and Sense of Fujisawa "Necessity"

which what kinds of impression people feel in. Figure. 3 shows an example of 24 adjective senses of places maps. The map represents some areas for meaning of "open" and "wide" sense and some areas for the opposite meaning of "close" and "narrow" sense. The map told us that people might have different sense if the areas were neighborhood. Also, sense of place might change in a border on the road because of the neighborhood.

Third, the 24 adjective quantitative data were classified into Livability, Activity, and Periodity by factor analysis using SPSS software, and senses of places maps for each factor

were created. Livability factor includes ordinary life or environment-oriented, Activity factor includes social life-oriented such as streets, parks, or stations, and Periodity factor includes time-oriented such as a place of memory or historical place. Figure 4 shows sense of place map for Livability. In the map, the darker color areas have the stronger relationship for Livability than the other areas. The map told that darker color areas were overlayed with the places related to daily life, such as roads and stations to commute, or parks for a walk.

The comparison analysis between sense of place maps and the real world maps were overlayed these two different maps. As an example, figure 5 shows Visible Areas for Sea and Enoshima and Sense of Fujisawa "necessary" and "unnecessary". The figure shows that the two maps are really overlayed each other; therefore, a lot of Fujisawa people feel that the sea and ENOSHIMA are indispensable.

Conclusion

Major findings were those, 1) senses of Fujisawa were structured by Livability, Activity, and Periodity, landuse was influenced in sense of place, and 2) different neighborhoods make people feel different images. Also, it became possible to see invisible senses of places in the study; therefore, which spaces impress our lives was clarified, and which spaces related to what kind of our impression.

The result of the study can provide quite effective information for the future city planning. Sense of place distribution can show common images or important places for the community. If the common images are taken account of city planning criteria, it can be easy to get community agreement with city planning. Furthermore, the common images or important places for the community are sampled, it can be easy to plan environmental preservations and to order of priority for them.

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