Relation between Mixed Land Use and Living Environment: Difference of Evaluation by Degree of Mixed Use and Different History

Takahiro SUEZAWA*, Tatsuya KISHIMOTO*, Yoko HATORI**

1. Introduction

These days, in an inner-city area of Tokyo, mixed districts with residential and commercial use have increased because there are a large number of actions to compact city and large-scale complex development. The relation of the mixed land use with criminal occurrence and characteristic of the environment are revealed[1][2]. This study aims to reveal the resident' evaluation of mixed land use. In this study, we conducted questionnaire survey about the evaluation of living environment to residents living in the district of mixed land use and compared the result of the evaluation among areas which have different characteristics. We statistically tested the influence of the mixed land use on living environment.

2. Questionnaire and Focused area

The questionnaire consists of the questions about attributes of respondents (age, sex, town and district where they live) and questions about the evaluation of living environment. The evaluations of living environment are answered by six items regarding satisfaction of their dwelling and eleven items regarding impression in terms of convenience, spatiality and atmosphere of their town. All items are measured by seven levels.

Focused areas consist of the districts mainly assigned as commercial zone in inner-city area of Tokyo and an area of the New Town of suburb for comparison. We treat the ratio of the number of workers to residents in a certain district as the index which shows the ratio of mixed land use. With the index, we classify focused area into five areas (commercial area, sub-commercial area,

Figure 1 the ratio of mixed land use   Figure 2 Yamanote, Shitamachi, NT
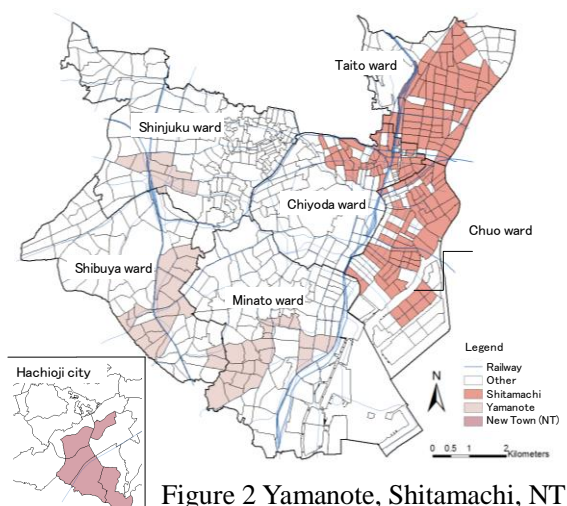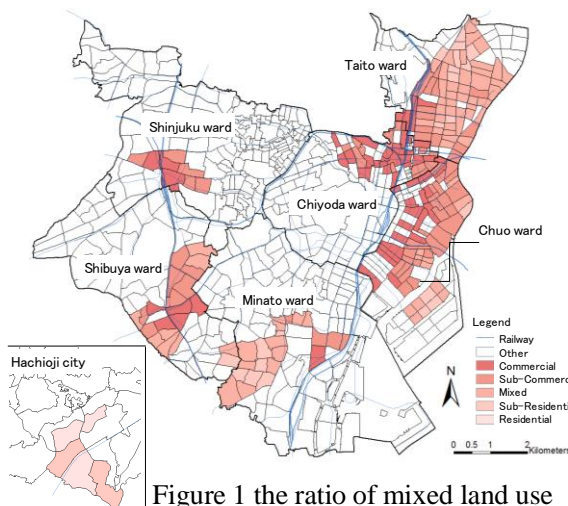
* Keio University, **Kanagawa Prefectural Government
E-Mail: t.suezawa.1126@gmail.com

mixed area, sub-residential area, and residential area). In addition, we classify focused area into Shitamachi and Yamanote. Shitamachi is the historical commercial area. Yamanote is the residential area where samurai houses are located.

3. The analysis of the evaluation of living environment

954 residents answered the questionnaire. 12 quesitons out of 17, were positively answered. Four questions in the rest are neutrally answered. Only the question about quantity of green was negatively answered. From the above results, there is a tendency that majority of residents living in the mixed area are satisfied with their living environment.

Besides, we compared the result of the evaluation among classified areas. First, we made cross tabulation tables of classified areas and the result. If the result of chi-square test shows that significance level is 10%, we carry out residual analysis to the table. The results are summarized as Table 1 and Table 2. They show the items which are more answered (+) and less answered (-) in a certain area than others. In commercial area, impression of the town is relatively bad and satisfaction of dwelling tends to be good. As for the historical difference, Shitamachi has low satisfaction of dwelling and good impression of the town and Yamanote has opposite tendency to Shitamachi.

Table 1 The result of residual analysis (satisfaction, good)

	Dwelling(Satisfaction)						Convenience		Spatiality							Atmosphere	
	Privacy	Security	Safety	Public service	Community	Overall	Shopping good	Traffic good	Road wide	Density high	Buildings high	Townscape beautiful	Spaciousness	Road bright	Green much	Public security good	Atmosphere good
Commercial (N=133)													———		———	———	———
Sub-Com (N=321)	+	++					———			+++	++	——	–			+	
Mixed (N=339)							+++										+++
Sub-Resi (N=128)	———	——	———		++	–							——				
Residential (N=33)						+++				———	–	+++	+++		+++	+++	+++
Shitamachi (N=588)	+++	+++	+++							+++	+++	———	———		———		———
Yamanote (N=319)	———	———	———							———	———	———	+++		+++		++
NT (N=47)							+			———	———	+++	+++		+++	++	+++

Table2 The result of residual analysis (dissatisfaction, bad)

	Dwelling(dissatisfaction)						Convenience		Spatiality							Atmosphere	
	Privacy	Security	Safety	Public service	Community	Overall	Shopping bad	Traffic bad	Road narrow	Density low	Buildings low	Townscape ugly	Oppression	Road dark	Green little	Public security bad	Atmosphere bad
Commercial (N=133)					+++		+++					++	+++		+++	++	+++
Sub-Com (N=321)	–		——				+++			——			++				
Mixed (N=339)	+				——		———						———				–
Sub-Resi (N=128)			++				———					–					
Residential (N=33)										+++	+	———	———		———	–	
Shitamachi (N=588)	———	———	———						———	———	——	+++			+++		
Yamanote (N=319)	+++	+++	+++						+++	++		——			———	+++	
NT (N=47)									–	+++		———	———		———	——	

Significance level +++:1%, ++:5%, +:10%

4. Conclusion and Discussion

 This study revealed the positive/negative factors of living environment in terms of the degree of mixed land use and historical land use through questionnaire survey and analysis. We consider that mixed land use have different effects on living environment according to the balance of commercial use and residential use.

Keywords: *Urban housing, living environment, mixed land use*

Reference:
1)Bill Hillier and Ozlem Sahbaz, CRIME AND URBAN DESIGN: AN EVIDENCE-BASED APPROACH, DESIGNING SUSTAINABLE CITIES, WILEY-BLACKWELL, 2009, pp.164-185
2)Kung-Jen Tu, Li-Ting Lin, Evaluative structure of perceived residential environment quality in high-density and mixed-use urban settings: An exploratory study on Taipei City, landscape and Urban Planning 87, 2008, pp. 157-171