Visual Judgment on Landscapes and Land-uses of Bogor Municipality

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ボゴール市の景観と土地利用に対する視覚的判定に関する調査研究

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Résumé

In this research, citizens of Bogor city were asked to judge some photographs of the city landscapes and land-uses. Those landscapes are an old settlement, a new settlement, an office area, a riverside with unplanned settlement, a riverside with abundant trees, a commercial area with traffic jam, a greenbelt area, a field crop area, and an unplanned settlement. Semantic differential ratings were used to measure respondents' perception of landscape in detail. In addition to that assessment, the respondents were asked to judge the best and the worst three of the landscapes.

Generally, there is similarity in the results between this and previous research, especially in judging the landscapes and land-uses. The old and new settlements were affirmly rated by respondents in comparison with rating of unplanned settlement. They disliked the commercial area with traffic jam and the unplanned settlement.

Public opinions on the landscapes and land-uses of Bogor city in this research became clear, and the results will be carried across to the Bogor City Planning Authorities. It would be a help for them to consider the citizens' perception and participation in their actions.

要　　　旨

本研究は，インドネシア. ボゴール市の市街地とその周辺部の景観と土地利用について，住民に写真を見せて判定を依頼し，視覚的選好を分析考察したものである。判定の対象は住宅地，河川沿い，商業地区，緑地帯及び畑地などとした。これらの判定では SD 法を用いて分析すると共に，対象景観の選好の順位つけ試験をもおこなった。その結果，大枠において，前回に行った地図を用いた景観と土地利用の選好試験と同様の結果を得た。すなわち，自然発生的集落に比較して古い住宅地と新しい住宅地などが肯定的に判定された。また，交通渋滞を伴う商業地や市場などが好まれなかった。ボゴール市当局の計画決定に際しては，市民のこれらの選好を考慮に入れるべきであろう。

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Introduction

Bogor city has a good landform for visual landscapes. The undulating and hilly landforms of Bogor city make possible many vistas. The vistas are sometimes towards the natural landscapes like mountain, valley, river, and others. It would be unfortunate if many vistas were obscured by structures like buildings, or some undesirable views can not be avoided from the view points. The last is found in great quantities in Bogor. This case not only occurs in the undulating and mountainous landforms, but also in the plain landform. The undesirable views can be in the form of rubbish, slums, and even traffic jams. These views are selected from landscapes used in previous research. The objective in this research is to study the sense of the citizens' visual preference to the landscapes and land-uses of Bogor Municipality.

In the previous research, the residents in four communities revealed their opinions concerning landscapes and land-uses of Bogor Municipality. They categorized the areas in Bogor municipality as the changed landscapes, the areas that should be protected, the areas to be developed, the favorite and the distasteful places. The most of respondents preferred the Bogor Botanical Garden and the old settlement close to the Botanical Garden as the area that should be protected from any development and as their favorite place. The areas where traffic jam often occurred became the focus of attention for the residents as a distasteful place[1]. Some characteristics of the landscapes which appeared and were described in that research will be considered in this research, and the views of residential areas will be made use of such as old, new, and unplanned settlements. A detailed assessment of these landscapes and land-uses will be explained in the next chapter.

A visual assessment of the city landscapes is useful to describe conditions of the city in terms of citizens' point of view. There may appear to be a unity in ideas regarding the improvement of the quality of the city environment. Public ideas may also be bottom-up suggestions, whereas until now the city planning is almost top-down suggestions. The City Planning Authority can employ or at least consider the citizens' visual experiences and assessments in their actions.

Research Method

The data were collected from three research locations. Those locations were close to shopping centers and/or department stores scattered in Bogor Municipality. The first location is close to the southern part of the Botanical Garden, called Bogor Plaza (the old name was Pasar Bogor, see previous research[1]). This place has been just reconstructed into new shopping area. The second location is situated close to the eastern part of the Botanical Garden, called Bogor Internusa. The last location is close to Dewi Sartika Plaza and Kebon Kembang Shopping Center or Pasar Anyar located in the northern part of Central Bogor district. The research was conducted from November to December, 1993.

Research Objects

Nine landscapes of Bogor Municipality were selected on the basis of previous research[1], they were as follows:

1)   Old settlement
2)   New settlement

Figure 1.   The settlement landscapes. L1=old settlement, L2=new settlement, and L9=unplanned settlement.

3) Office
4) Riverside with unplanned settlement
5) Riverside with abundant trees
6) Commercial area with traffic jam
7) Green belt
8) Field crop area
9) Unplanned settlement

All of these are categorized into three groups and shown in figures 1, 2, and 3. The first group is settlement landscapes consisting of the old, new, and unplanned settlements. The riverside with unplanned settlement and abundant trees are the second group. We call this group riverside landscape. Then, the third group consists of the office area, commercial area with the traffic jam, the greenbelt and field crop areas.

The purposive sampling method was employed in selecting these landscapes. Each landscape in the map was enclosed, and then it was overlaid by meshed map with 250×250 squares meter grids. Grids in each landscape were randomly selected to get a representa-

L4

L5

Figure 2. River landscapes. L4=riverside with unplanned settlement
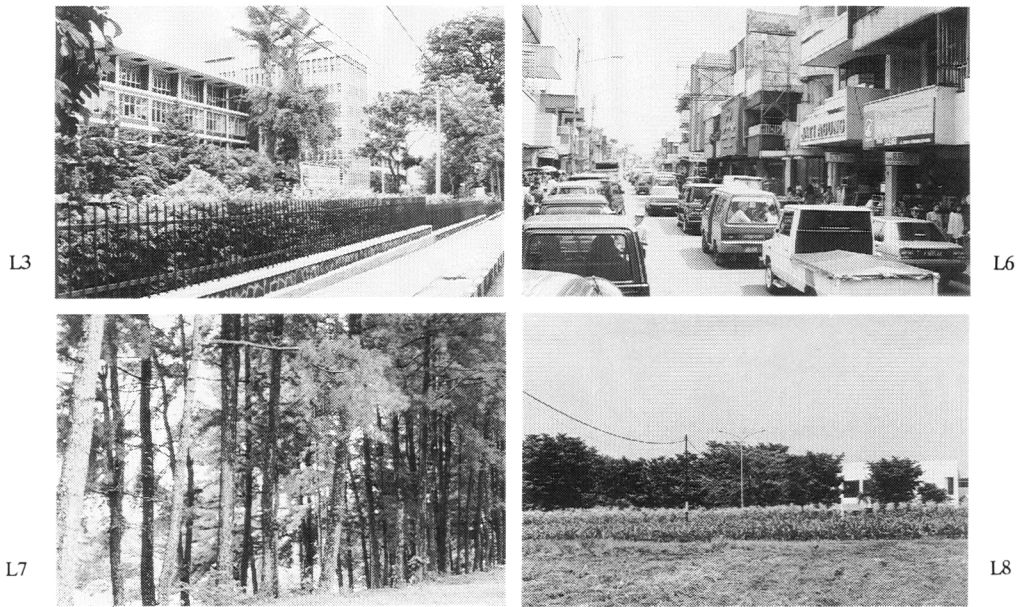and L5=riverside with abundant trees.

Figure 3.   Various landscapes. L3=office area, L6=commercial area with traffic jam,
            L7=greenbelt, and L8=field crop area.

tive condition of the landscape. Many photographs were taken from this grid to describe the landscape condition. After taking photographs we selected a photograph that represented the condition of the landscape.

The selected photograph (the photographs were enlarged to size 5R or about 12.5 cm × 17.5 cm) from each landscape was attached in a panel in three parallel lines. We gave marks 1 to 9 at the top of each photograph to indicate the landscapes. The names of the sites in the photographs were not mentioned to avoid bias in ratings the landscapes.

Respondents and Response Format

To attract respondents to this research, we placed the panel in front of the main gate of each plaza. Visitors who were attracted to this panel were asked to fill out questionnaire. We had conducted the research from 10:00 a.m. to 5:00 p.m. every day for a month. Besides judging the landscapes, they had to put their personal data on the questionnaire sheet.

The Questionnaire consisted of 11 questions and was divided into three sections. The first question was concerned with personal data of the respondents (i.e., gender, age, and length of residence). The second section was concerned with landscape judgment. This section consisted of the questions from number 2 to 10 as a judgment on the nine landscapes by using semantic differential. Semantic differential ratings were used to measure respondents' perception of the landscapes in detail.

Semantic differential in this research employed twenty-three criteria (scales) which were largely chosen from the fifty pairs of bipolar adjectives used in Osgood's original study[2]. The others were chosen to reflect the concepts. The concepts in this case are the nine

sheets of photographs of the landscapes mentioned before. All criteria were interesting-uninteresting, simple-complex, beautiful-ugly, old-new, dense-thin, stable-unstable, colorful-dreary, natural-artificial, big-small, broad-narrow, ordinary-unordinary, quiet-noisy, comfortable-uncomfortable, safe-dangerous, bright-dark, good-bad, wet-dry, clean-dirty, cool-hot, harmonious-disharmonious, planted-barren, pleasant-unpleasant, and various-monotonous.

The respondents gave a value to each criterion based on a five-point scale. An example of the question form is as follows:

Beautiful : ———————— : —— X —— : ———————— : ———————— : ———————— : Ugly

The respondents were told that marking the middle of the scale indicates that they think the value is neutral in relation to either end of the scale. Marking outward from the middle indicates that they judge a progressively higher value to the criteria at either end of the scale.

The third section was landscape preference. The respondents were asked to evaluate the landscapes as the best, better, good, bad, worse, and the worst ones. Placing this question to the end of questionnaire was to prevent respondents from modifying their evaluation.

Results and Discussion

A large number of subjects were participated in this research, 375 people. About 53.9 percent of them are living in Bogor Municipality, and the rest came from Bogor Regency. The subjects in this case are called respondents. Table 1 shows important data of the respondents (gender, age, and living years).

Factor Analysis of the Judgment for the Nine Landscapes

In this research, we made use of the nine intercorrelational matrices of every scale for nine concepts in three groups (settlement, riverside, and various landscapes). A total of nine matrices were factor analyzed using the method of principal components, and the factors thus derived within each concept were rotated by the varimax method[3]. This research made use of procedure of extraction of the factors as in the Yoshida's study[4]. The extraction of the factors in each concept was stopped at the range where the eigenvalue had been more over than 1.0 and where most of the variance had been approximately extracted.

Table 1. Personal data of respondents (in percentage)

Gender	%	Age	%	Length of residence	%
Male	72.3	*Less than 20 years*	21.1	*Less than 5 years*	32.0
Female	27.7	*20 - 29 years*	64.3	*5 - 9 years*	18.4
		30 - 39 years	9.0	*10 - 19 years*	20.0
		More than 39 years	5.6	*More than 29 years*	29.6

The rotated factor matrices for the first three factors for each concept (landscape) appear as tables 2, 3, and 4. In addition to the nine concepts, we summed all the concepts to describe entirely the landscape and factor analyzed it as comparison to each concept. It was presented as total landscape (T). The first and dominant factor for all nine analyses may be identified as evaluative factor. The scales of pleasant-unpleasant, good-bad, harmonious-disharmonious, and beautiful-ugly have loadings of 0.8 or larger (based on total landscape) and appear as common scales, although each concept showed loadings for those scales from 0.33 to 0.83. This first factor is in substantial agreement also with results obtained in Osgood's study[2].

The second factor might be labeled as potency. The highest loadings and the most restricted ones are the scales of cool-hot and wet-dry. These scales have loadings of 0.68 or larger on the basis of total landscape. Concepts L2, L3 , L5, and L8 have high loadings factor for those scales. The third factor was spaciousness. The scales of big-small and broad-narrow become dominant and common scales in this factor, and these have loadings of over 0.77 on the basis of total landscape.

Three dimensions of the semantic space and the scales in each dimension were determined, and they are evaluation (pleasant-unpleasant, good-bad, harmonious-disharmonious, and beautiful-ugly), potency (cool-hot and wet-dry), and spaciousness (big-small and broad-narrow). The profile of the judgment for the concepts in the next discussion will make use of those dimensions and scales.

Table 2. First varimax-rotated factor in judging 9 landscapes. The nine landscapes are old (L1) and new (L2) settlements, office area (L3), riverside with unplanned settlement (L4), riverside with abundance trees (L5), commercial area with traffic jam (L6), greenbelt area (L7), field crop area (L8), and unplanned settlement (L9).

Criteria	Evaluation									
	L1	L2	L3	L4	L5	L6	L7	L8	L9	T
Interesting-uninteresting	.517	.701	.715	.672	.757	.696	.560	.498	.349	.782
Simple-complex	.309	.308	.367	.583	.646	.611	.292	.507	.499	.658
Beautiful-ugly*	.637	.677	.775	.745	.795	.754	.611	.546	.547	.815
Old-new	-.122	-.201	-.052	.034	.082	.162	.104	.631	.003	-.113
Dense-thin	-.237	.103	.125	-.167	-.130	-.121	.229	.036	-.287	-.215
Stable-unstable	.101	.368	.610	.593	.586	.542	.498	.354	.193	.660
Colorful-dreary	.158	.345	.626	.175	.394	.307	.606	.070	-.004	.285
Natural-artificial	-.033	.014	.180	.156	.210	.531	.234	.687	.339	.274
Big-small	.099	.289	.221	.042	.234	.397	-.019	.723	.021	.255
Broad-narrow	.102	.177	.284	.089	.184	.495	-.012	.699	.124	.282
Ordinary-unordinary	-.068	.073	-.037	.274	.246	.236	.139	.371	.268	.232
Quiet-noisy	.098	.601	.337	.576	.516	.713	.195	.674	.737	.675
Comfortable-uncomfortable	.269	.674	.536	.827	.791	.751	.503	.579	.765	.796
Safe-dangerous*	.232	.658	.400	.745	.731	.688	.421	.207	.744	.769
Bright-dark*	.354	.457	.415	.387	.491	.253	.194	.076	.442	.467
Good-bad*	.562	.750	.582	.830	.810	.776	.539	.406	.789	.836
Wet-dry	.316	.095	-.165	-.066	-.045	.470	.052	-.008	.303	.114
Clean-dirty*	.485	.652	.488	.753	.718	.649	.302	.110	.735	.800
Cold-hot	.331	.251	.188	.120	.213	.630	.201	.432	.677	.418
Harmonious-disharmonious*	.433	.715	.757	.783	.753	.782	.702	.327	.746	.826
Planted-barren	.365	.418	.410	.417	.491	.721	.425	.461	.654	.569
Pleasant-unpleasant*	.595	.767	.694	.817	.778	.799	.711	.355	.760	.825
Various-monotonous	.526	.641	.689	.531	.680	.646	.741	.158	.637	.672
Variance :	2.880	5.680	5.272	6.609	7.111	5.191	4.190	4.638	6.561	8.130

Note: *marked bipolar adjectives (*) are grouped into dimension of evaluation. They are beautiful-ugly, safe-dangerous, bright-dark, good-bad, clean-dirty, harmonious-disharmonious, and pleasant-unpleasant.*
T = total landscape

Table 3. Second varimax-rotated factor in judging 9 landscapes. The nine landscapes are old (L1) and new (L2) settlements, office area (L3), riverside with unplanned settlement (L4), riverside with abundance trees (L5), commercial area with traffic jam (L6), greenbelt area (L7), field crop area (L8), and unplanned settlement (L9).

Criteria	Potency									
	L1	L2	L3	L4	L5	L6	L7	L8	L9	T
Interesting-uninteresting	.032	.049	-.149	.159	.159	.741	.527	.224	.634	.125
Simple-complex*	-.083	.109	.009	.030	.141	.570	.724	.284	.388	.181
Beautiful-ugly	.148	.073	.040	.185	.184	.739	.554	.284	.547	.151
Old-new	-.033	.649	.017	.139	.675	.083	.015	.112	-.088	.635
Dense-thin	.217	-.043	.282	-.170	.045	-.031	-.090	-.048	.010	-.019
Stable-unstable	.618	-.021	.082	.089	-.048	.431	.257	.300	.658	.102
Colorful-dreary	.089	.018	.129	.077	.016	.574	-.027	.078	.092	-.096
Natural-artificial*	.178	.570	.377	.531	.670	.182	.266	.084	.463	.651
Big-small	.247	.130	.067	.849	.269	.190	.718	.022	.330	.286
Broad-narrow	.362	.130	.056	.866	.409	.195	.783	.046	.154	.301
Ordinary-unordinary	.221	-.013	.105	.280	.180	-.014	.273	.014	-.191	.161
Quiet-noisy*	.612	.070	.313	.317	.448	.199	.635	.244	.182	.338
Comfortable-uncomfortable	.629	.058	.298	.100	.221	.254	.523	.291	.232	.277
Safe-dangerous	.536	.006	.345	.011	-.020	.214	.381	.097	.133	.059
Bright-dark	.322	-.371	.088	.368	-.033	.233	.165	-.008	.009	-.311
Good-bad	.340	-.047	.099	.052	.189	.478	.458	.322	.182	.093
Wet-dry*	-.250	.721	.730	.175	.662	-.009	.069	.783	.446	.698
Clean-dirty	.367	-066	.201	.003	.057	.388	.303	.637	.247	-.006
Cold-hot*	.306	.707	.778	.093	.729	.141	.090	.611	.274	.683
Harmonious-disharmonious	.535	.137	.104	.078	.249	.565	.177	.359	.245	.155
Planted-barren*	.268	.500	.526	.115	.603	.266	.070	.537	.340	.594
Pleasant-unpleasant	.435	.215	.146	.087	.285	.589	.204	.301	.261	.239
Various-monotonous*	.139	.246	.148	.285	.251	.689	.022	.112	-.027	.159
Variance :	2.879	2.355	2.126	2.355	3.096	3.873	3.705	2.507	2.407	2.835

Note: *marked bipolar adjectives (*) are grouped into dimension of potency. They are simple-complex, natural-artificial, quiet-noisy, wet-dry, cold-hot, planted-barren, and various-monotonous.*
T = total landscape

Table 4. Third varimax-rotated factor in judging 9 landscapes. The nine landscapes are old (L1) and new (L2) settlements, office area (L3), riverside with unplanned settlement (L4), riverside with abundance trees (L5), commercial area with traffic jam (L6), greenbelt area (L7), field crop area (L8), and unplanned settlement (L9).

Criteria	Spaciousness									
	L1	L2	L3	L4	L5	L6	L7	L8	L9	T
Interesting-uninteresting	.333	.166	.154	.000	.183	.068	.056	.342	.126	.189
Simple-complex	.693	.025	-.073	.313	.054	-.017	-.027	.208	.096	.133
Beautiful-ugly	.095	.195	.203	-.015	.165	.074	.045	.397	.140	.223
Old-new	.500	.273	.260	.753	.055	-.020	.197	-.026	.106	.033
Dense-thin*	.161	-.229	-.013	.594	.080	-.012	.118	.133	.011	-.320
Stable-unstable	.072	.381	.209	.196	.444	.155	-.021	.421	.089	.163
Colorful-dreary	.155	.294	.096	.036	.039	.182	-.033	.792	.057	.319
Natural-artificial	.031	.498	-.138	.353	.200	.191	.203	.040	.232	.312
Big-small*	.086	.737	.828	.054	.842	.844	.103	.244	.783	.786
Broad-narrow*	-.029	.791	.788	.087	.782	.818	.082	.278	.839	.778
Ordinary-unordinary	.656	.020	.039	.410	.097	.103	.269	.147	.599	.118
Quiet-noisy	.139	.232	.075	.215	.141	.062	.137	.019	.273	.221
Comfortable-uncomfortable	.123	.324	.056	.100	.158	-.029	.340	.139	.140	.155
Safe-dangerous	-.017	.074	.213	-.008	.047	-.042	.278	.096	.089	.088
Bright-dark	.410	.031	.240	-.011	.041	.133	-.081	.135	.228	.227
Good-bad	.186	.031	.322	.061	.152	.105	.258	.155	.110	.153
Wet-dry	-.114	-.060	.084	.542	.169	.336	.718	.080	-.069	.158
Clean-dirty	.260	-.026	.324	-.079	.038	-.033	.341	.208	.011	.046
Cold-hot	-.057	.085	.043	.073	.142	.261	.770	.134	-.007	.123
Harmonious-disharmonious	-.016	.090	.076	-.043	.069	.170	.299	.484	.132	.116
Planted-barren	.044	.274	.171	.029	-.005	.058	.651	.165	.013	.118
Pleasant-unpleasant	-.163	.165	-.118	-.051	.109	.175	.330	.493	.093	.124
Various-monotonous	-.121	.133	.103	-.073	.122	.186	.220	.668	.036	.223
Variance :	1.713	2.151	1.917	1.740	1.799	1.814	2.375	2.394	1.998	1.965

Note: *marked bipolar adjectives (*) are grouped into dimension of spaciousness. They are dense-thin, big-small, and broad-narrow.*
T = total landscape

Profile of the Landscapes

In figures 4, 5, and 6, mean judgments on all scales were computed for each concept. The concepts consisted of nine landscapes categorized into three groups. The first group was that of settlement landscapes (shown in figure 1 for the view and figure 4 for the profile of judgments), consisting of old, new, and natural settlements. The second group was that of riverside landscapes (shown in figure 5 for the profile of judgment), that is a riverside with an unplanned settlement and one with abundant trees (without an unplanned settlement). The third group is the rest of the nine landscapes, and they are the landscapes of office, greenbelt, field crops, and commercial areas (the profile is shown in figure 6). The profiles were divided into three dimensions (evaluation, potency, and spaciousness).

Looking at profiles of those landscapes, apparently some landscapes have many more positive or favorable ratings than others in the dimension of evaluation. For examples, the landscapes of the old and new settlements are more towards to the scales of pleasant, good, harmonious, and beautiful than the unplanned settlement landscape (Figure 4). It may be caused by the first two landscapes being seen as more elite and livable than the last one that was seen as a slum area. In the dimensions of potency and spaciousness, the landscape of the old settlement received a rating towards the scales of cool and wet (more than 3.0). The old houses and the big trees may be felt as quiet cool and somewhat wet. The houses and yards were quite big and wide. On the contrary, the new and unplanned settlements appeared to have hot and dry conditions. The trees may not yet be grown up well in the new settlement, and there was not space for the trees in the unplanned settlement. These were the reasons why the residents in Bogor municipality
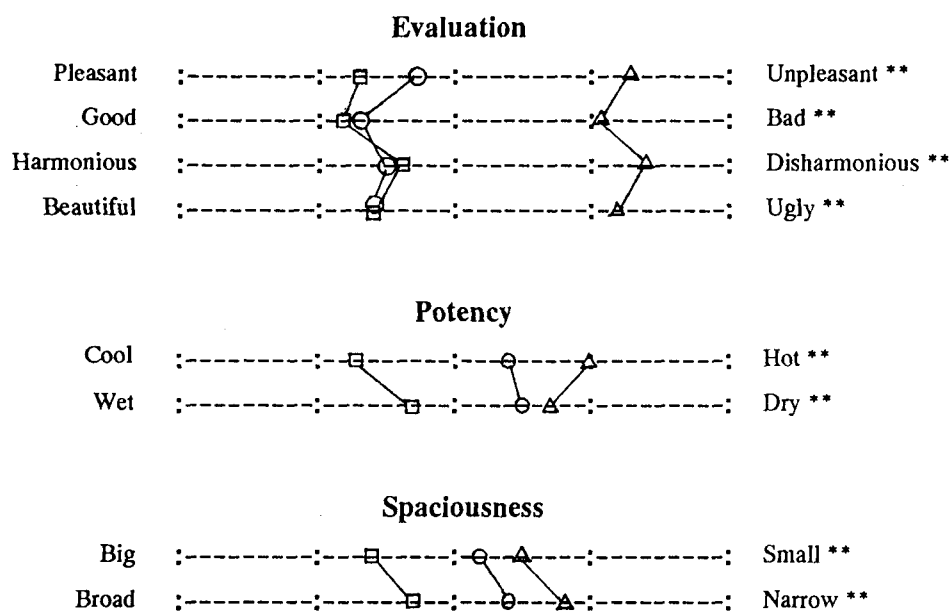

Figure 4. Profile of settlement landscapes.
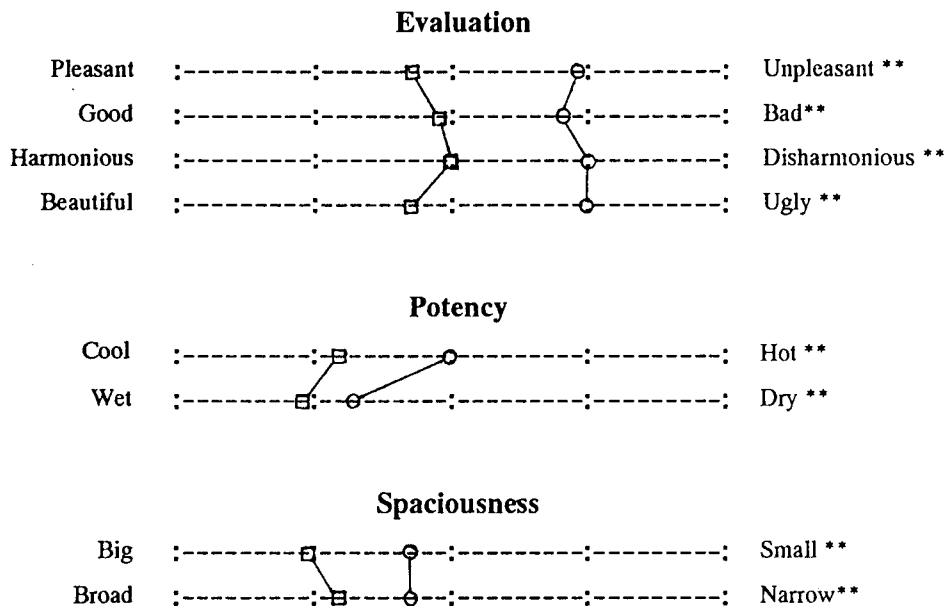□—□ old settlement, ○—○ new settlement, and △—△ unplanned settlement, Mark "**" indicates significant at p<0.01.

Evaluation

Pleasant   :---------:------⊡--:------⦿:---------:   Unpleasant **

Good   :---------:------⊡:------⦿-:---------:   Bad**

Harmonious :---------:------⊡-------⦿---------:   Disharmonious **

Beautiful   :---------:------⊡--:------⦿----------:   Ugly **

Potency

Cool   :---------:---⊡-------⦿--------:---------:   Hot **

Wet   :-------:---⊡--⦿------:---------:---------:   Dry **

Spaciousness

Big   :--------⊡------⦿--:---------:---------:   Small **

Broad   :---------:--⊡---⦿--:---------:---------:   Narrow**

Figure 5. Profile of riverside landscapes.
○—○ riverside with unplanned settlement and □—□ riverside with abundant trees (without unplanned settlement). Mark "**" indicates significant at p<0.01.

Evaluation

Pleasant   :------⦿:--⊡-△---:--------⦿---------:   Unpleasant **

Good   :---------:--⦿⊡-----:------⦿-:---------:   Bad **

Harmonious :------:---⊡-△--:------⦿:---------:   Disharmonious **

Beautiful   :------⦿--:⊡△-----:------⦿:---------:   Ugly **

Potency

Cool   :---------⦿----⊡-△-:---------⦿---------:   Hot **

Wet   :---------:---⦿-△-⊡:-------⦿---------:   Dry **

Spaciousness

Big   :-------⊡△---------:--⦿-----:---------:   Small **

Broad   :------⦿⦿:---------:-----⦿-:---------:   Narrow **
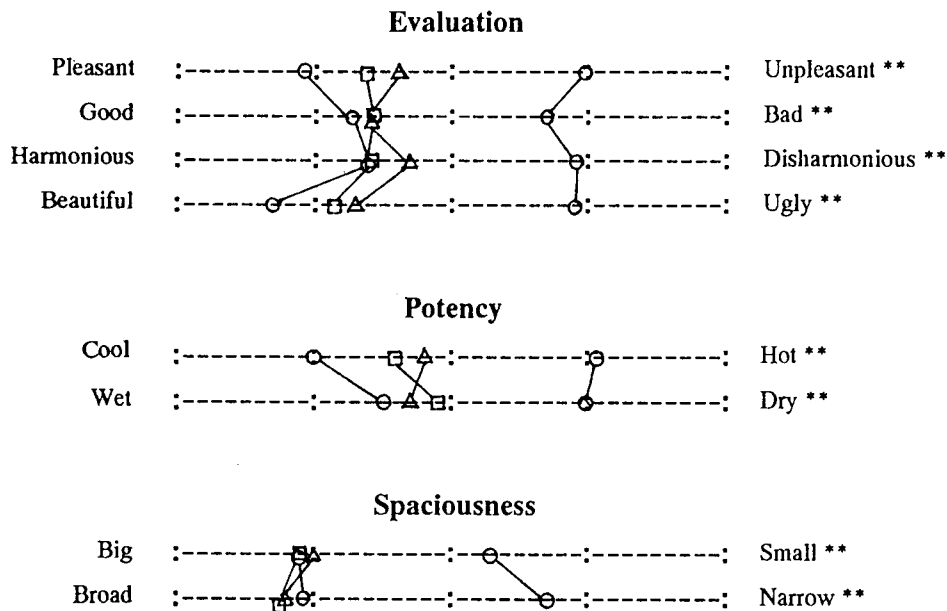
Figure 6. Profile of various landscapes (except settlement area).
□—□ office area, △—△ greenbelt area, ○—○ commercial area with traffic jam (down town without greenery), and ○—○ field crops area. Mark "**" indicates significant at p <0.01.

preferred the old settlement as the favorite place[1]. The mean of rating each landscape in each bipolar adjective was tested by using t-test.

The landscape of the riverside with abundant trees has more effect for the subjects than the riverside with an unplanned settlement (Figure 5). The existence of the unplanned settlement in this landscape may visually reduce the valuation of the landscape view. However, the riverside with an unplanned settlement has negative ratings for the dimensions of evaluation. In the dimensions of potency and spaciousness, both the landscapes have a rating over average towards the scales of cool, wet, big, and broad. Statistically, those landscapes were significantly different at the level 1 percent (for all scales).

In figure 6, the traffic jam view in the commercial area may have its effect on rating this area more unfavorable than the other areas (i.e., office, greenbelt, and field crop areas) in the dimension of evaluation. In the previous research, traffic jams were one of the reasons in judging the area as a distasteful place in Bogor municipality[1]. The office, greenbelt, and field crop areas received positive ratings regarding the dimension of evaluation. The condition of the commercial area was very hot and dry, because there was not any tree which can ameliorate microclimate there. Because density of shops was very high and the size was small in that area, it was rated by citizens towards the scales of small and narrow in the dimension of spaciousness. In the dimension of potency, mean of rating the landscapes were statistically significant each at the level 5 percent. The commercial area is significantly different (at the level 1 percent) from the landscapes in the dimension of spaciousness, while the three other landscapes are not significantly different from each other, although at the 5 percent level.

Preferring the Landscapes

The respondents were asked to judge which one of the nine landscapes was the best, better, good, bad, worse, or the worst. These items were generally grouped into two groups; first is the positive group: the best, better, and good; the second is the negative group: bad, worse, and the worst. The results of preferring those landscapes are shown in figure 7. In this study, the respondents were categorized into four groups in the basis of how many years they have been living in Bogor city (i.e., less than 5 years, 5-9 years, 10-19 years, and more than 19 years). The percentage of the respondents in each group was shown in table 1.

More than 50 percent of the respondents in each group judged the unplanned settlement as the worst landscape. There was not any respondent who judged this landscape as the best, better, or good landscapes. Generally, each group of respondent has the same pattern in preferring the landscapes. They predominantly preferred the landscapes of the old and new settlements, the office area, and the field crop area as the best, better, or good landscapes, then they also saliently judged the landscapes of the riverside with unplanned settlement, the commercial area, and unplanned settlement as bad, worse, or the worst ones. Some landscapes were preferred as belonging to both groups of items. These landscapes were the riverside with abundant trees and the greenbelt area. The existence of the trees in the landscapes might not influence their perception as to the favorite
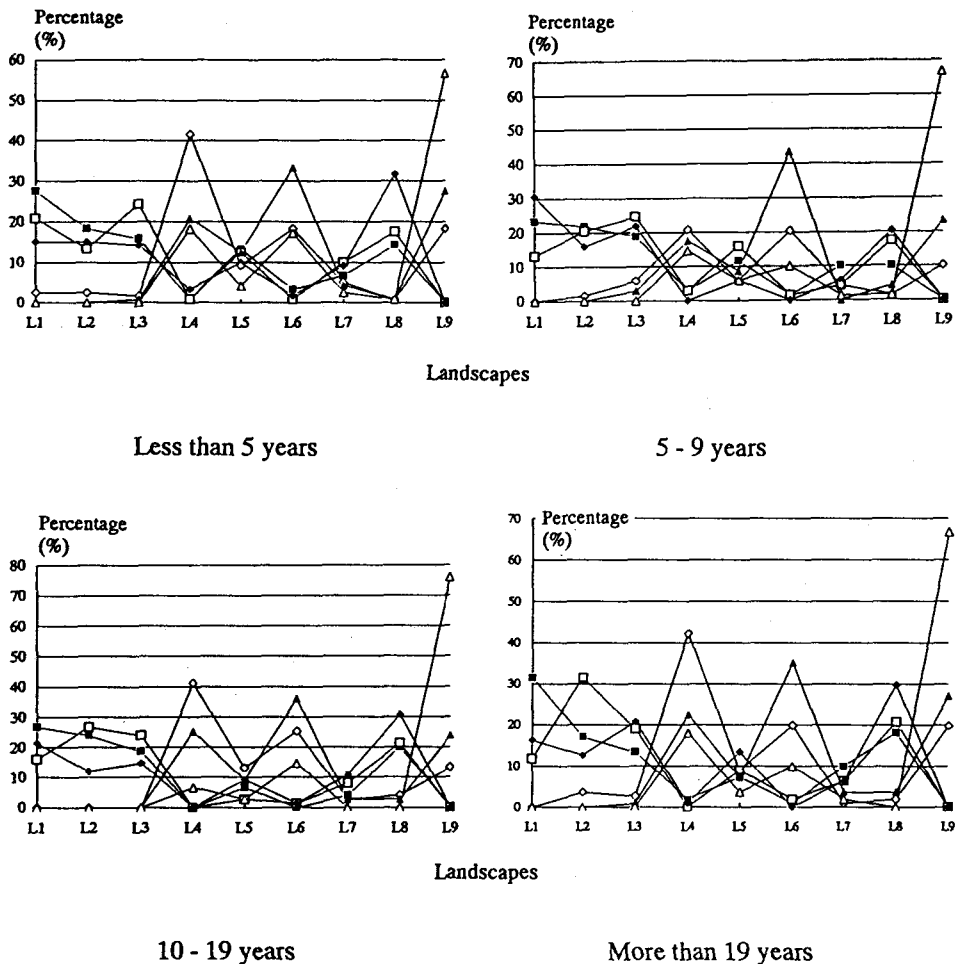
Figure 7. Preference of landscapes based on length of residence.
L1=old settlement, L2=new settlement, L3=office area, L4=riverside with unplanned settlement, L5=riverside with abundance trees, L6=commercial area with traffic jam, L7=greenbelt area, L8=field crop area, and L9=unplanned settlement. —■— the best, —□— better, —●— good, —◇— bad, —▲— worse, and —△— the worst.

landscape, because they came from areas with abundant trees (e.g., countryside).

The profile of the natural settlement landscape (as mentioned before) tended to have negative ratings in all dimensions. It means that they might dislike the condition of that landscape.

Implication in City Planning

This research and previous research[1] derived public opinion on the environment of their daily life. Existence of image of the citizens concerning the traffic jam, slum, and others, it means that the local government should consider these opinions in their policy. To reduce the image of the traffic jam which often occurred in Bogor city, the circulation of

vehicles should be replanned. This problem may not only be felt by the respondents, but all the citizens also feel. Views of slum resulted in the reduced value of the visual landscapes. It is necessary to consider rearranging and/or redesigning the unplanned settlements or the slum areas, especially along the riverside, to be livable physically and visually for everyone who lives there. This consideration, of course, should be based on the conservation of slope areas.

Conclusion

Generally, there is similarity in the results between this and the previous research, especially in judging the landscapes. The perceptions of the citizens of Bogor, in this study, have illustrate the situation of Bogor city landscapes. The old and new settlements depicted the suitable environment for living there in terms of citizen's perceptions. The positive ratings of these landscapes indicate that they wish to live in such environments. The commercial area with the traffic jam, the riverside with the unplanned settlement, and the unplanned settlement itself are the landscapes of Bogor that are disliked by the most of the respondents. The areas with abundant trees or vegetation were rated high enough. This condition should be increased if the authorities desire Bogor as a city in the garden[5].

The citizens' consciousness through this investigation could be more clear with the result that they care about the city environment. It is important in the city planning, and it may help for city planners to identify some problems of the city development. However, the results of this research should be frequently discussed with the Bogor Planning Authorities to ascertain possibility of inserting these into their actions.

References

1) Gunawan, A. and H. Yoshida (1994). Landscape and land-use preference in the urban fringe of Bogor, Indonesia. (Japanese) Journal of The Japanese Institute of Landscape Architects, **57** (5). 367-372

2) Osgood, C.E., G. Suci, and P. Tannenbaum (1957). The measurement of meaning. Urbana, University of Illinois Press.

3) Kaiser, H. F. (1958). The varimax criterion for analytic rotation in factor analysis. Psychometrika, **23** (3). 187-200

4) Yoshida, H. (1981). Studies on landscape evaluation of roadside cutting slopes. Memoirs of the College of Agriculture, Kyoto University, No. 118. pp. 1-28

5) Bogor Municipality Authority (1984). Rencana induk kota Bogor (Bogor Master Plan). (Indonesian Language) Pemerintah Kotamadya Daerah Tingkat II Bogor.