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The Study of Behavioral Approach to the Greenery (Landscape) Image

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Abstract

The aim of this study is to obtain the knowledge regarding the maintenance and organization of greenery (Landscape) in neighborhood areas, by clarifying the relationship between various elements of greenery and the human behavior. In this study, we analyze two different factors side by side: The attitude of people for incorporating various greenery into their living environment, and the image of greenery which is captured by the people through their daily activities.

As a result, it has become clear that the environment of the areas in which people live strictly reflects their image of greenery, that the ways people behave in their daily lives are closely related to the manners in which people build up their image of greenery, and also that the concept of greenery includes rather unfamiliar factors which can only be described as "terrible" feeling, "solemnness," etc. In regard to the attitude of people towards incorporating greenery into their own environment, it also has become clear that their concept of greenery can be different depending on the status of greenery; whether they are public or private, according to their reactional behaviors, and it also has become clear that the people's feelings for incorporating greenery to their own environment differ to a certain extent depending on the kind of greenery concerned.

We consider these results derived from this study to stipulate a rather important concept in analyzing the meaning of greenery in the urban areas of tomorrow. The results of this study should also be considered as important factors for clarifying the subjects bodies of planning and maintaining greenery (Landscape) in such areas.

Introduction

The concerns of people for creating a richer "green" environment have shifted from a focus on increasing the quantity of greenery in their environment to trying to improve the quality of greenery so that better harmony can be accomplished between their own life activities and the greenery in their living environment.

In order to improve the quality of greenery, it is important to focus on the manners in which people contact the greenery in their daily activities.

The aim of this study is to obtain the knowledge regarding the forming (organizing) and maintaining of greenery (landscapes) in the areas of people's daily activities. The study intends to do this by clarifying the relationship between the various elements which form greenery (landscape) and the reactive behaviors (mainly the activities to contact greenery and the intentions of incorporating greenery into their own environment, etc.) of housewives who seem to have contact at deeper levels with their neighborhood and also with the surrounding areas.

For the analysis, three different areas were selected in Sakai City, Osaka Prefecture; Shourinji (old town area), Nakamozu (newly developed residential area), and Minamiyashimo (agricultural village).

In this study, we proceeded analyses from two different view points:

1. By interviewing housewives of each area, we collected the information regarding distribution of "Impressive Greenery" which were noted within the areas of their daily activities. These "Impressive Greenery" was noted through the contacts made during the housewives' routine movements, such as on the routes of shopping, taking walks, and trips to and from the nearby railway stations, etc. We further collected the image terms used by the interviewees for describing the "Impressive Greenery."

All these data collected from such interviews were overlaid, and made into maps; one showing the daily movement patterns of the housewives, and also the one showing the distribution of "Impressive Greenery" noted by them.

The maps of each of the areas were compared for analyses.

2. We interviewed the residents, who were to be the subject body of maintaining and increasing greenery, as to their attitudes towards incorporating greenery into their own living environment. In the interview, we focused on various features in the environment which could be regarded as the locations of planting and/or increasing greenery.

The data collected through such interviews was analyzed with the Dual Scaling Method. Through the analysis, the attitudes of residents in each of the areas of study towards incorporating and increasing greenery was evaluated on the same (single) axial.

Through the discussions of this study, we were able to draw some important concepts for considering the meaning of greenery in future cities. We also were able to clarify the position and function of the subject bodies, which are to be in charge of planning, developing, and maintaining greenery in our living environment.

Finally, with our sincere gratitude, we would like to make a special acknowledgement to Mr. Kazuhiko Inoue, a graduate student at the University of Osaka Prefecture, for his contribution to this study, and also like to thank the senior students: Mr. Hiroyasu Oinaka, Mr. Yoshihiro Oiso, Mr. Shigeki Kurose, Mr. Yoshitsugu Kuwayama, Mr. Ryo Koike, Mr. Masahiko Nakamura, and Ms. Mihoko Maeda; who performed the interviewing and processed the data for completing this study. (the status are of Showa 60, or 1985.)

1. Study Procedures

1-1 *Method of Survey*

This study is based on the comprehension of two major components of the subject; the physical characteristics of the environment in the case study areas, and the patterns of contacting and perceiving greenery which are shared by the housewives who live in the areas. The research on the latter has been proceeded mainly by collecting data through interviewing housewives of the areas.

(1) *Physical Survey of the Environment*

The survey was conducted at two different levels: surveying the entire areas of case study as a whole, and surveying each of the areas where the research interviews were conducted.

At the former level, the distribution of greenery was studied and also the gross size of green area was calculated by comparing the topographical map of 1/2,500 scaled, which had been issued by the Sakai City Office in 1978, and the aerial photograph of 1/50,000 scale, which had been prepared by Osaka Prefectural Government in 1984.

The environmental indexes such as population density, land use ratio, etc., were

taken from the Regional Physical Data Sheet which had been issued by the Sakai City Office (published in March, 1983.)

In the survey conducted at the latter level, the distribution of the green areas are carefully studied. The gross size of the green areas, per lot land sizes, as well as the sizes of building covered areas, were calculated through comparing the topographical map of 1/500 scale, which had been issued by the Sakai City Office in 1981, and the same aerial photograph mentioned in the above.

(2) *Interviewing.*

The data used for the study was collected by about 10 interviewers (surveyors), during the period of 4th to 5th and 11th to 12th of September, 1985.

The number of valid responses obtained through such interviewing were: 35 from the Shourinji area, 35 from the Nakamozu area, and 36 from the Minamiyashimo area, for a total of 106 responses.

< The contents of the questionnaires used in the interviewing >

In question No. 1, each interviewee was asked to evaluate the degrees of her feelings about the greenery in the area of case study (their own neighborhood), by selecting a term which better fitted her feelings from each of the nine pairs of adjectives presented by the interviewer.

In question No. 2, each interviewee was asked to evaluate the amount of greenery in the area which they could contact in their daily activities, by selecting one of the five level terms presented; from "very few" to "plenty."

In question No. 3, each interviewee was asked to select one of the three level terms describing the degree of satisfaction which better represented her present feelings about the greenery in the subject area.

In question No. 4, each interviewee was asked to outline her routine activities on weekdays.

In question No. 5, each interviewee was asked to mark the routes of her daily movements, starting from her own house, as well as the locations and her image of "Impressive greenery" on a map of the case study area.

In question No. 6 and No. 7, each interviewee was asked to comment on her past experiences in participating in activities of increasing greenery in her neighborhood, and also her intention (willingness) to cooperate in incorporating/increasing greenery in the area.

In questions from No. 8 through No. 12, the interviewee's personal background, such as age, the length of residence in the area, etc., were asked.

1-2. *Method of Analyses.*

(1) *The Method of Analyzing Structure of Greenery Image.*

Firstly, by organizing the data collected from the responses to question No. 5 (detailed above), the map of each study area showing the routes of housewives' shopping, taking walks, and their trips to and from the nearby railway stations was prepared. In the map, each of the routes is shown with one of the four grades of classification; < less than 15 % >, < 15 % to less than 30 % >, < 30 % to less than 60 % >, and < 60 % or more >; representing the ratio of housewives use of the particular route to the total number of housewives in the area who were interviewed.

Secondly, a distribution map was prepared, also by using the responses to question

No. 5, showing the locations of "Impressive Greenery," which had been freely marked by the interviewees, also classified into four types;

- < Spot of Greenery > represented by big trees, sacred trees, etc.
- < Line of Greenery > represented by live fences (hedges), roadside lined with trees, etc.
- < Area of Greenery I > represented by rice paddies and fields, etc.
- < Area of Greenery II > represented by reservoirs, etc.

By using the "Map of Impressive Greenery Distribution" and the "Map of Daily Movement" which had been prepared in the above manners, analyses were performed on each of the three areas of the case study, taking the characteristics of each area into consideration, by comparing the details with the actual distribution of greenery in the area. Further analyses were performed in the same manner, on the entire three areas as a single whole.

(2) *Method of Analyses as to the Defining of Private/Public Status of Greenery.*

The responsive data regarding the attitude towards incorporating/increasing greenery into the environment, for each of the types of locations (objectives), – closely associated with green foliage – were collected from the responses of the 106 housewives to the above question No. 7. The each interviewee had been asked to select one of the following answers for each of the locations (objectives.)

- < Do nothing >
- < Cooperate in maintaining greenery to the extent of watering >
- < Participate in activities of planting/increasing greenery if seeds/seedlings are provided. >
- < Taking care of greenery all by herself. >

As to the locations (objectives) where greenery is to be planted/increased, the following items were presented; < Garden of her own house >, < Area around the entrance of her own house >, < Live fences of her own house >, < Roads in her own neighborhood >, < Nearby parks >, < Rivers and reservoirs in the area >, < Schools >, and < Shrines and temples >.

By utilizing the data obtained in the above mentioned manner, analyses were performed on each of the three areas of case study, again taking the characteristics of each area into consideration, through evaluating the distribution pattern of the number of responses expressing the positive attitude towards participating activities of incorporating/increasing greenery for each of the locations (objectives) itemized in the above.

An analysis was also performed in the same manner, as to all three areas of the case study as a single whole. The data were then further analyzed by using the Dual Scaling Method, one of the method of Multivariate Analyses.

2. **The Outline of Living Environment in the Areas of Case Study**

The characteristics of living environment in the three areas of the case study; Shourinji, Nakamozu, and Minamiyashimo; were clarified both at the neighborhood level and at the block level.

Table 1 shows the environmental indexes (various environmental data) of each area at the block level, as well as at the neighborhood level. Fig. 1 shows the geographical

Table 1. Living Environmental Index

Scale	Neighborhood Scale			Block Scale				
	Name of Area	Total Area	Density	Open Space	Block Area	Ave. of Lot Size	Ave. of Open Space	Ave. of Green Covered Area
	Shourinji	197.3 ha	129.6 person /ha	34.2 ha 17.3 %	76,400 m ²	187 m ² /lot	64 m ² /lot 4.9 %	9 m ² /lot 4.9 %
	Nakamozu	93.9 ha	107.8 person /ha	42.8 ha 45.6 %	65,910 m ²	150 m ² /lot	71 m ² /lot 47.2 %	20 m ² /lot 13.3 %
	Minamiyashimo	191.4 ha	67.6 person /ha	140.2 ha 73.2 %	106,350 m ²	432 m ² /lot	198 m ² /lot 45.8 %	60 m ² /lot 14.0 %

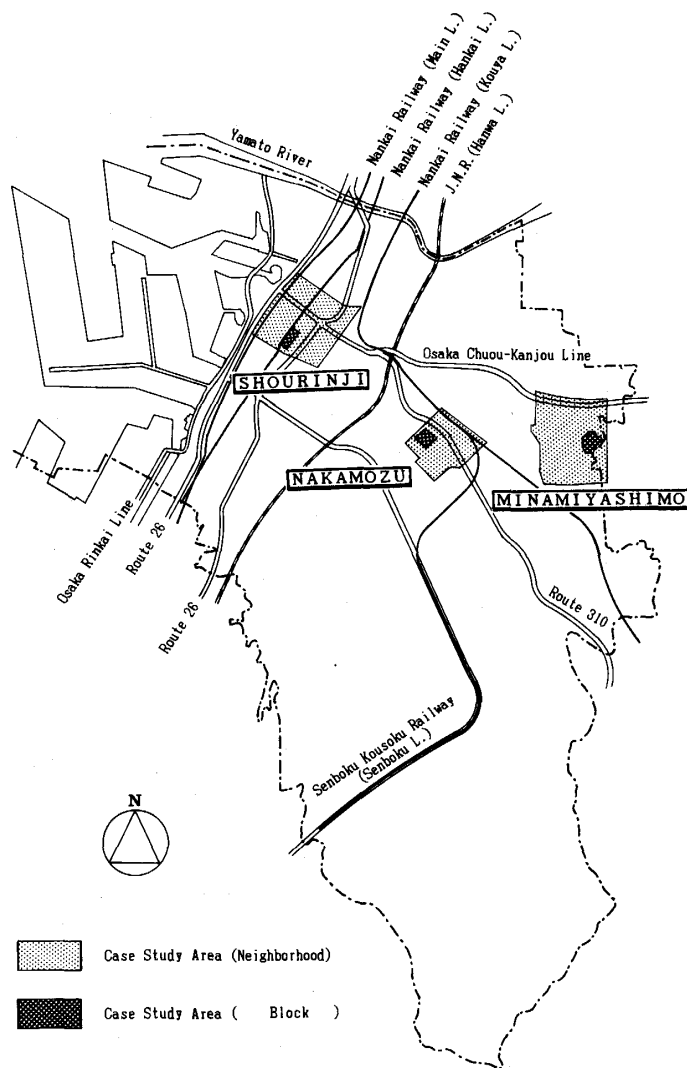


Fig. 1. Location of Study Areas

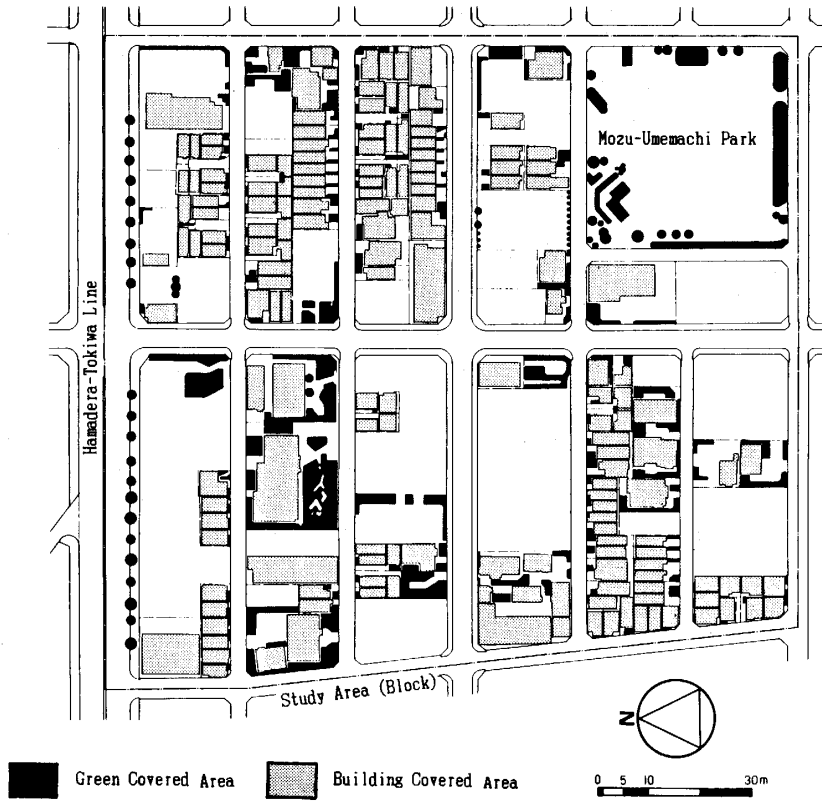


Fig. 2. Distribution of Greenery Covered Areas (Shourinji Area)

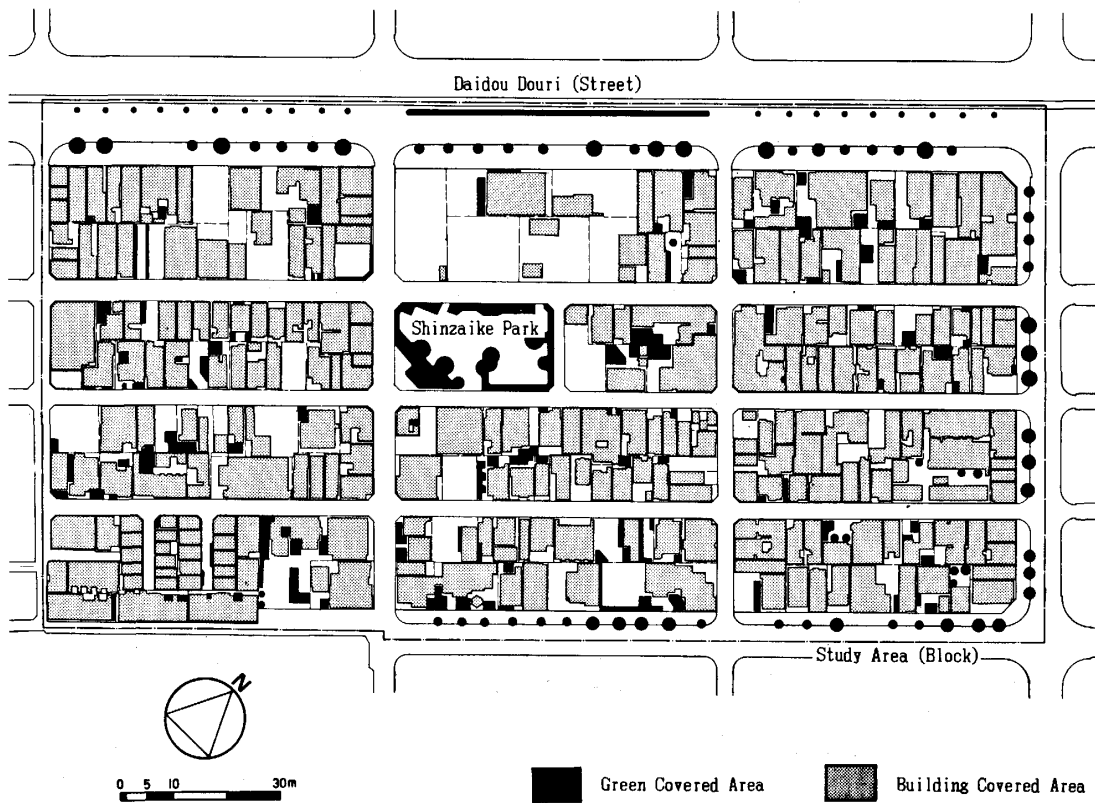


Fig. 3. Distribution of Greenery Covered Areas (Nakamozu Area)

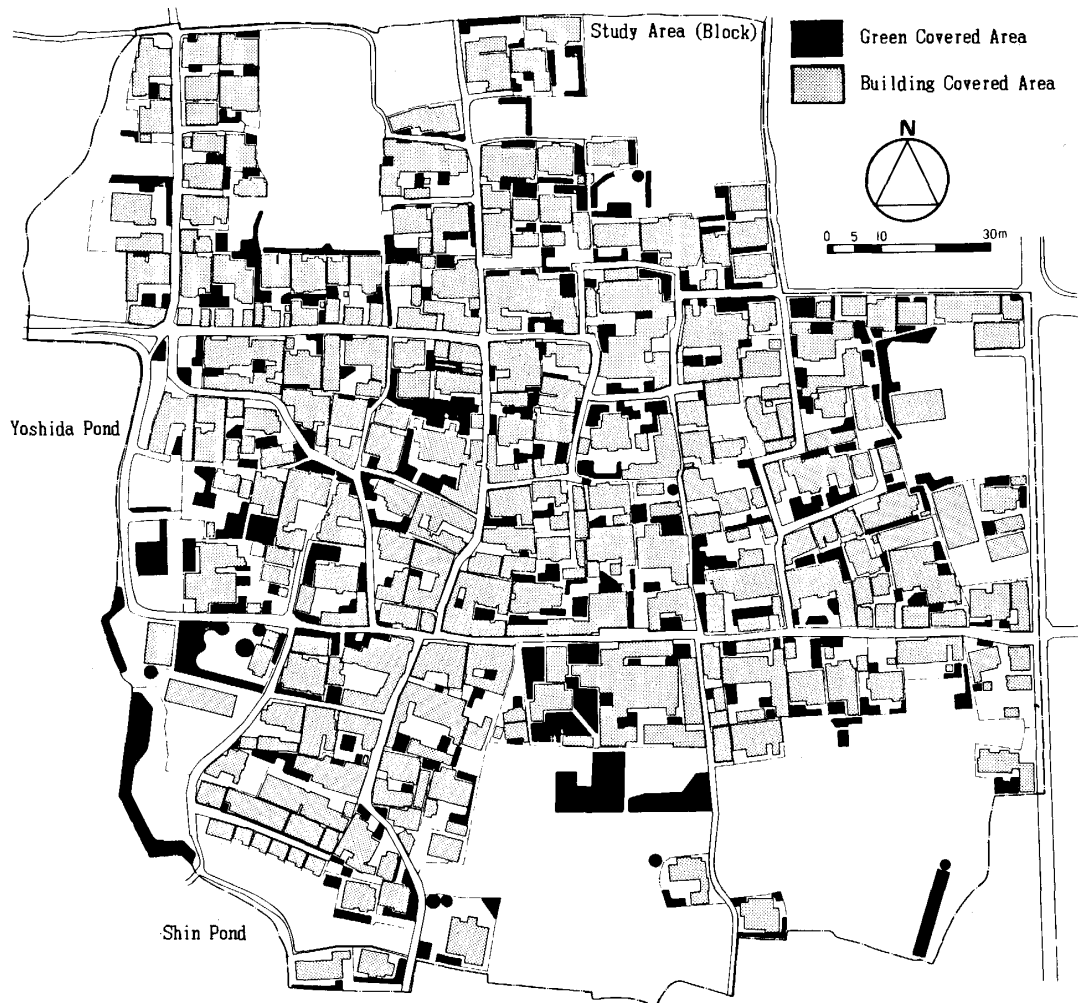


Fig. 4. Distribution of Greenery Covered Area (Minamiyashimo Area)

locations of the areas in this case study. Fig. 2 through Fig. 4 are the maps showing the distributions of greenery covered areas in the blocks which were the subject of this case study.

< Shourinji Area >

This area has been urbanized since the time the Sakai City Municipal Organization was enforced for the first time. The area has been regarded as a residential area, and, at the same time, as a commercial area (the mixture of both features are found).

The population density of the area is 129.6 persons/ha., which is more than twice as high as that of the Sakai City in average, i.e., the area is considered to be rather heavily populated. The ratio of open space is 17.3 % and among the three areas of this case study, the least variety of greenery can be found.

At the block level, the average size of land per lot is 187 m², that of open space per lot is 64 m², and that of the greenery covered area per lot is 9 m². It is obvious that the area is clustered with houses and very small amount of greenery is found.

We can describe the area to have the kind of environment characteristic to the typical urbanized areas, where the landscapes with greenery favorable and attractive

to people are scarce.

< Nakamozu Area >

In this area, the land re-adjustment (re-organization of subdivision) has recently been completed. Although some rice paddies and fields are still scattered within, the area can be defined as a newly developed residential area where the major portions are classified as the Class 2 Exclusive Residential Zone.

The population density of the area is 107.8 persons/ha., which is relatively high. We can speculate that the urbanization of this particular area is still progressing. The ratio of open spaces in the area is 45.6 % which is also relatively high. There are various types of landscapes rich in greenery such as ancient tombs, planned housing complexes, a college campus, etc., in the area.

At the block level, the average size of land per lot is 150 m², that of open space per lot is 71.0 m². The average size of greenery covered area per lot is 20 m², which can not be considered as very large. However, we can observe private residences in this area are well taken care of.

From such observations, this area can be considered to have a rather rich surrounding environment, due to its location inbetween the old town areas and the agricultural villages.

In the meantime, when we look at the inner environment, it can be said that the area has the characteristics common among such newly developed residential areas, that is, greenery is rather scarce and the density of housing is rather high.

< Minamiyashimo Area >

This area is an agricultural village, which is located within the Urbanization Controlling Zone. The ratio of greenery covered area is 73.2 % which is the highest of all three areas of this case study. However, almost 70 % of the greenery covered landscapes in this area consist of rice paddies and fields.

At the block level, the average size of land per lot is 432 m², that of open space per lot is 198 m², and that of the greenery covered area per lot is 60 m².

Although the sizes of gardens are large, and there is a lot of greenery in the area, the major portions of landscape rich in greenery are surrounded and hidden with the type of walls and facades which are only found in the many old agricultural villages. There is not so much greenery such as live fences (hedges) facing the roads and the streets in the particular area.

Besides, as in the cases of many old agricultural villages, only a limited space is secured in the area for roads, parks, etc., meant for public uses.

From these observations, it can be said that the area is rich in the natural environment of the surrounding area where there are rice paddies, fields, and reservoirs. When we look at the inner environment of this area, the area also has a lot of private landscapes with rich greenery. The area can certainly be described as one of the few areas within Sakai City where we can feel a familiar and natural atmosphere of an agricultural villages.

3. Results

3-1 *The Image Structure of Greenery (Landscapes).*

In this section, we are trying to clarify the manners of structuralizing the people's

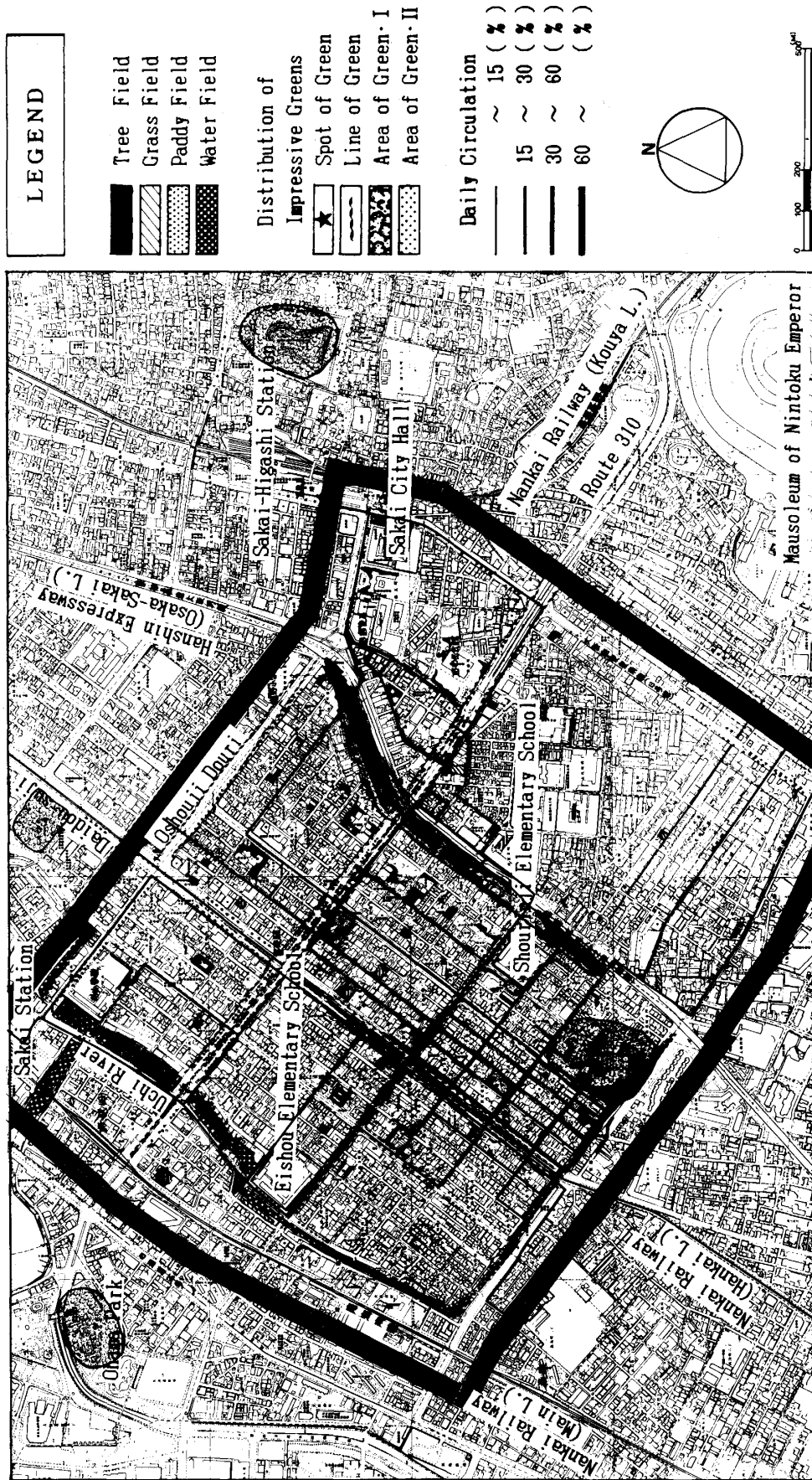


Fig. 5. Image Structure of Greenery (Shourinji Area)

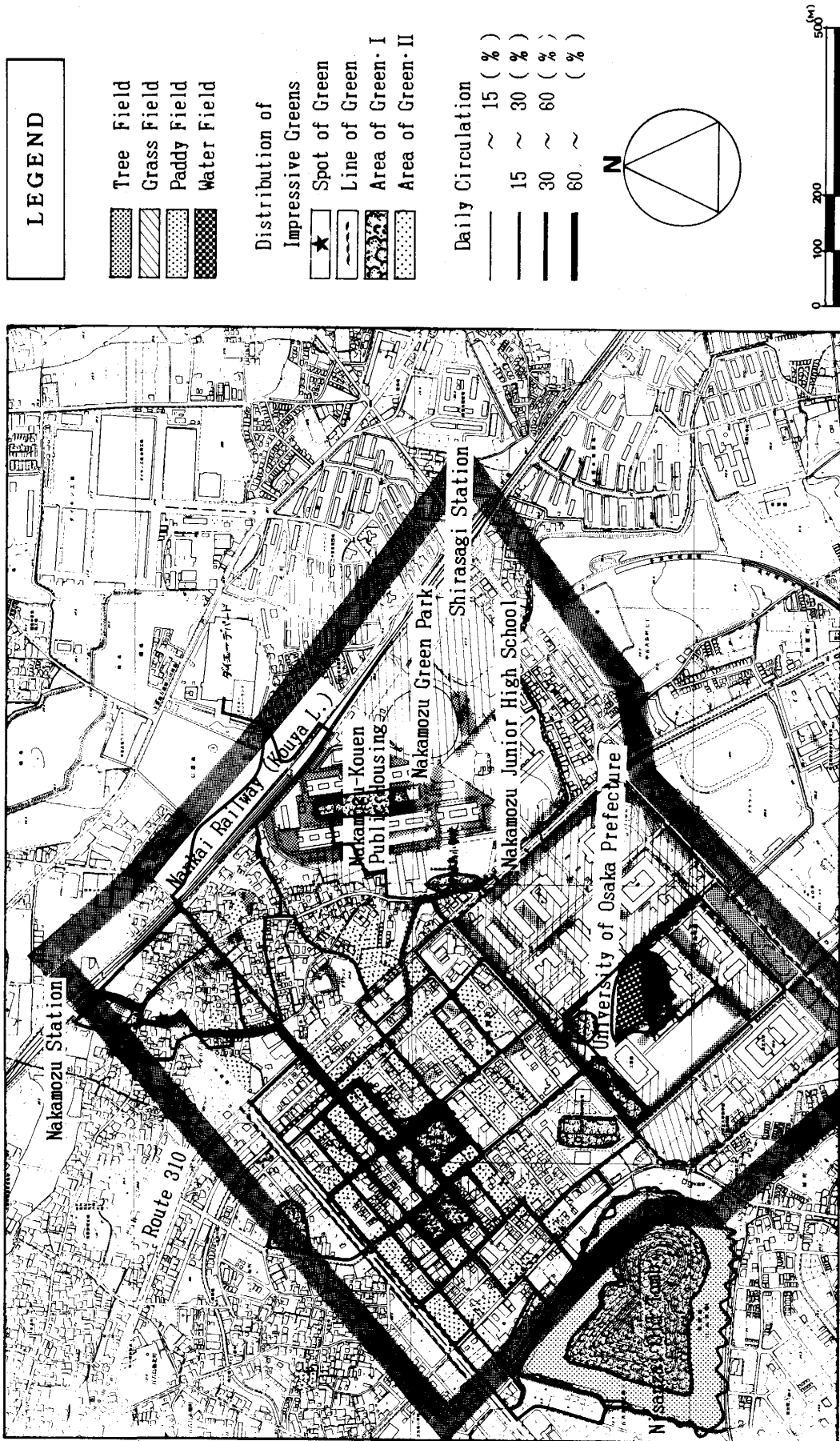


Fig. 6. Image Structure of Greenery (Nakamoju Area)

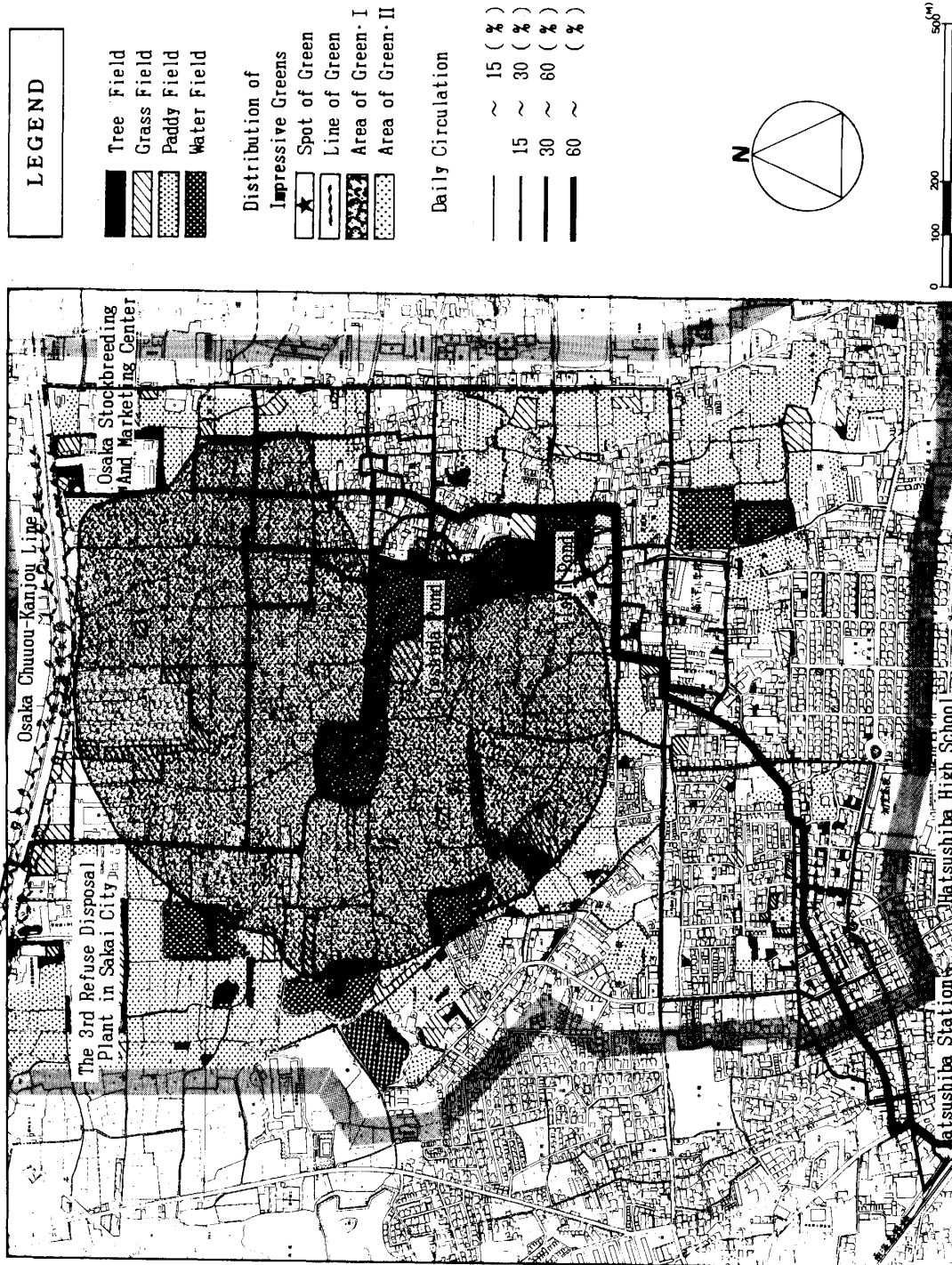


Fig. 7. Image Structure of Greenery (Minamiyashimo Area)

image of greenery, through discussing the results of analyses and also of comparisons made between the actual distribution of greenery and the distribution of "Impressive Greenery" perceived by the residents of the study areas, as well as the characteristics of the residents' activities in which the contacts with greenery occur.

The Fig. 5 through Fig. 7 show the image structure of greenery which is obtained by overlaying the movement patterns of residents and the distribution of "Impressive Greenery," as well as the actual distribution of greenery in each of the three areas of case study. Also, the data obtained here for each of the areas are organized into three categories: the types of "Impressive Greenery," the types of activities for Making contacts with greenery, and the image terms: which are tabulated and shown in the Table 2.

Table 2. The Structure of Green Landscape Image

Item Name of Study Area	Impressive Green				Type of Green Contact	Image
	Spot of Green	Line of Green	Area of Green			
			I	II		
Shourinji	Big Tree Flower Clock Flower Tree Fragrant Tree	Street Tree of Main Road Street Tree of Road Hedges Green of Facilities	Old Tomb Temple-Shrine Neighborhood Park Children Park Play Lot Green of School Green of Apartment Paddy-field	Moat of Old Tomb Reservoir	Shopping Taking a Walk Move to Station Regional Life Others	Sacred Green • Landmark Landmark
						Well-ordered Feeling of Nature • Well-ordered Well-ordered
						Calmly • Quiet Shade of a Tree Shade of a Tree Shade of a Tree Rich of Green
Nakamozu						Beautiful Color Fragrance of Tree
						Well-ordered Well-ordered Soften the Atmosphere Soften the Atmosphere
						Inspire with Awe • Terrible Green Shade of a Tree Shade of a Tree Shade of a Tree Changes of the Seasons
						Refreshing
Minamiyashimo						Well-ordered Beautiful Well-ordered
						Solemn Green • Sacred Green Changes of the Seasons Refreshing • Sacred Green

When we look at the data from each of the areas: In the Shourinji area, 2 places of "Spot of Greenery," 14 places of "Line of Greenery," and 5 places of "Area of Greenery I" are marked. This area has the least ratio of greenery covered area among the three areas of this case study. The variety of greenery is also very scarce, which is reflected in the fact that the type of greenery which had been noted by the residents was mostly the "Line of Greenery"; roadsides lined with trees almost exclusively.

In the Nakamoju area, 3 places of "Spot of greenery," 10 places of "Line of greenery," 11 places of "Area of greenery I," and 1 place of "Area of greenery II" are marked. In this area, there is a variety of greenery in the surrounding environment, and the number of "Impressive Greenery" noted by the interviewees not only is the highest in the all three areas of this case study, but also has the widest variety in its types.

In the Minamiyashimo area, 5 places of "Line of Greenery," 2 places of "Area of Greenery I," and 5 places of "Area of Greenery II" are marked. Although the number of places where the "Impressive Greenery" occur is the lowest of all the three areas of this case study, the expansion of greenery covered landscapes is the largest in all the three case study areas, reflecting the rural scenery which is prevalent in the surrounding areas.

From these results, it became clear that the distribution of the "Impressive Greenery" and the frequency of their occurrence, which had been noted by the interviewees, were fairly accurately reflecting the forms and quantities of the actual greenery of the areas.

Now, we are looking at each the types of "Impressive Greenery" which were noted by the interviewees one by one, from the "Spot of Greenery" through the "Area of Greenery II."

The greenery which has some conspicuous characteristics such as big trees, flowering trees, fragrant trees, etc. are noted as "Spot of Greenery." Frequently "Spot of Greenery" has been functioning as land marks on the routes of interviewees' daily movements.

The "Line of Greenery," which are; roadsides lined with trees, live fences, green belts around the public facilities; are the easiest to be noted by many of the interviewees since their contacts with such a type of greenery occur most frequently in their daily activities. Because of this particular fact, it can be said that the type of greenery represented as the "Line of Greenery" occupies very important portions in the landscapes in general.

The "Area of Greenery I" (greenery zone) are: "various kinds of parks," "greenery in temples and shrines," "greenery in schools," "greenery in ancient tombs," "rice paddies and fields," etc.. Such areas are considered as the space where people can play sports, etc., i.e., the area for physical, or even for psychological activities. In other words, it can be said that the landscapes of this type are the places where the structuralization of greenery image takes place by active contacts of people with greenery.

As the "Area of Greenery II," only "reservoirs" and "moats of ancient tombs" are noted by the interviewees, even though a variety of greenery of this type in considerable quantities are occurring in their environment. It became clear that these particular types of landscapes are not considered to be a familiar type of greenery, since there are not so many chances of contacting this type of greenery in the daily activities of interviewees.

When we look at the relationship between the distribution patterns of "Impressive Greenery" and the routes of interviewees' daily movements; "routes of shopping," "routes of taking walks," and "routes to and from the nearby railway stations"; most of the "Impressive Greenery" are noted on these daily movement routes. From this fact, we speculated that the residents of each area make contacts with greenery through life activities like their daily movements, and the structuralization of their image of greenery occur in such a process.

Also, when we make comparisons between the routes of different types of activities, more "Impressive Greenery" are noted on the ones for taking walks. From this fact, we can consider that people more actively perceive greenery in an activity such as taking

walks.

The people's feelings towards greenery can be grouped into two quite different types of categories; people more frequently used expressions such as "tremble with fear" when describing greenery in or before the Manyo Era - - - the period of "Nature Worship" (Animism), and expression such as "love" became more popular in a similar context since the Kokin Era - - - the period of "Humanity Worship." In other words, these periods can be categorised as the one of "Beauty of Nature" and that of "Beauty of Arts."

When we look at each of the image terms given to each of the "Impressive Greenery" noted by the interviewees, keeping the above distinctions in the types of people's feeling towards greenery in mind, regarding the greenery in general, they more frequently noted such terms as "beautiful," "gives peace of mind," "change of seasons," "shade of trees," etc., which can be classified within the concept of "Beauty of Arts," the one more prevalent since the Kokin Era. On the other hand, it became clear that the concept of the "Beauty of Nature," the one more frequently used in and before the Manyo Era, is still remaining in the feelings of modern people from the terms used for noting big trees, ancient tombs, greenery of shrines, etc., which are; "feel awesome," "fearful greenery," "Solemn greenery," and "sacred greenery."

We can consider such an insight of the people's feeling towards greenery is an important concept when we consider the landscapes of future cities.

3-2 *Difining the Status of Greenery between Private level and Public level.*

The Fig. 8 shows the attitude of incorporating/increasing greenery into the environment in percentages, based on the data collected from 106 housewives of the three areas of this case study.

From this diagram, we can assume that more than 50 % of the housewives would join the activities of incorporating/increasing greenery into their own environment in one way or the other when it comes to the gardens of their own houses, the areas around the entrance of their own houses, live fences of their own houses, the roads and streets in their own neighborhood, and the nearby parks.

On the other hand, more than 50 % of the housewives answered, they would "do nothing," as to the rivers and reservoirs, schools, shrines and temples in the surrounding areas.

It is not so difficult to understand that they do not have any active intentions of joining activities for increasing greenery in areas such as schools, temples and shrines, since such areas are managed under some people who are specifically assigned for the maintenance of landscapes, etc.

In regard to the areas such as rivers and reservoirs, they seem not to consider any necessities of their own active participation in such activities, but to consider some public organizations are to be in charge of planting and increasing greenery in such landscapes.

As a next step, we are trying to analyze the ways of participating in the activities of incorporating greenery into their environment in more detail. In this study, the ways of participating in such activities are classified into three different levels; "plant and increase greenery all by themselves," "actively participate in such activities only when seeds and/or seedlings are provided," "cooperate in maintenance of greenery to the extent of watering." As to the gardens of their own houses, the areas around the entrance of their own houses, and the live fences of their own houses, many of the interviewees answered either "do by themselves" or "maintain to the extent of watering," but the

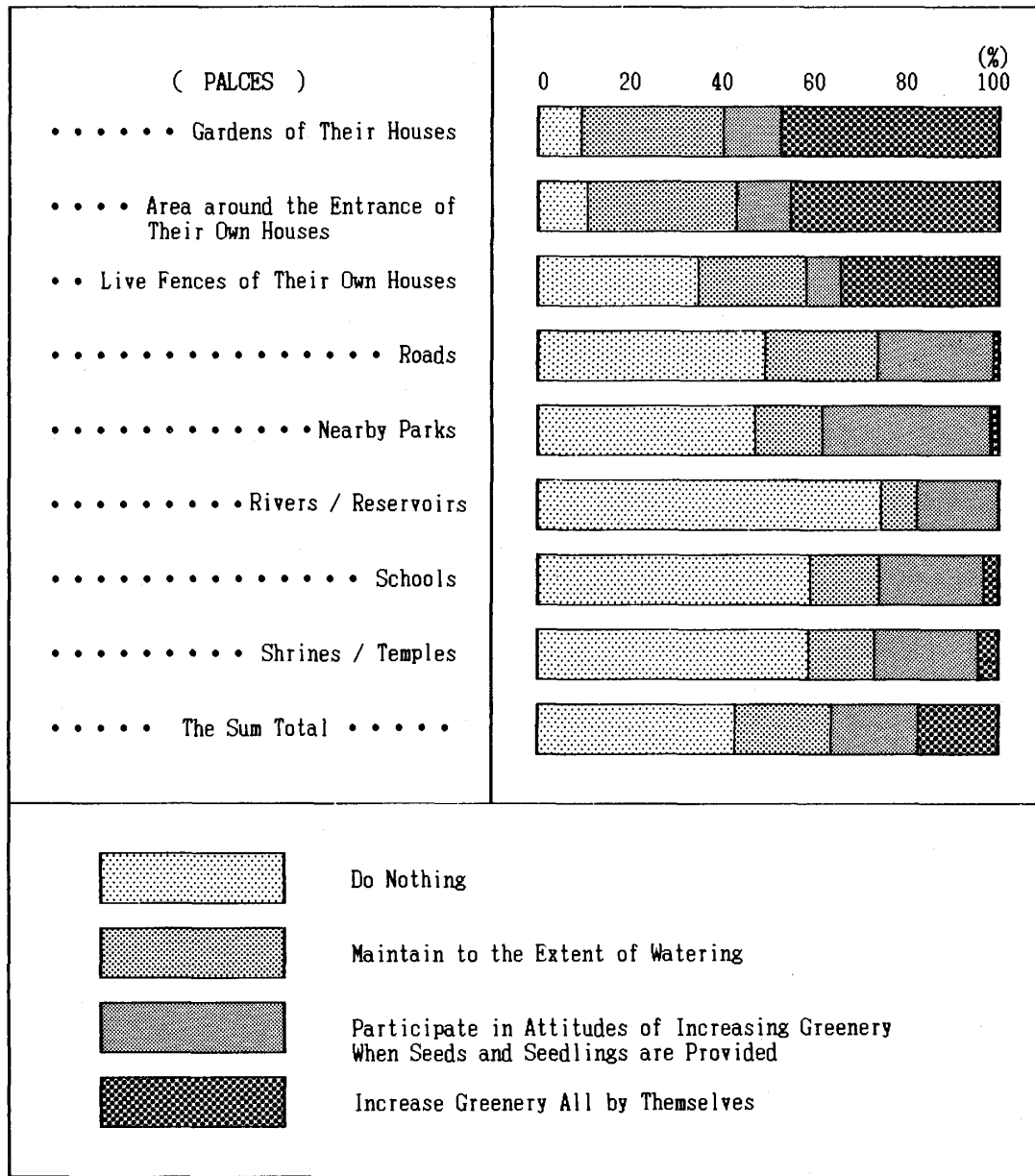


Fig. 8. Attitude of Incorporation/Increasing Greenery

ratio of persons who answered to “participate when seeds/seedlings are provided” is very low. On the other hand, when it comes to the roads, nearby parks, schools, and shrines and temples, the answer of “participate when seeds/seedlings are provided” occurred in relatively higher ratio compared to the case of their own gardens.

This indicates that the housewives tends to consider that the private greenery should be taken care of personally, and that they do not seem to consider they would increase greenery with the provisions of seeds and seedlings, or they might have had no such experiences before.

On the other hand, as to the public places such as roads, nearby parks, etc., the housewives seem to have intentions of participating in activities of increasing greenery when seeds/seedlings are provided, even though their enthusiasm seems to be rather low.

In short, the manners of housewives' participating in activities of planting/increasing greenery drastically differ depending on whether the locations/places are public or private. Such a result would be one of the very important factors when we consider the ways to encourage the residents cooperation in increasing greenery in the city landscapes of today. Also, the results indicate the necessities of thorough and detailed considerations as to the subject bodies of maintaining/developing greenery, as well as of greenery themselves, for the proceeding of environmental education, and also for carrying out any public movements for encouraging the incorporation and development of greenery in the environment.

Exactly the same analysis was conducted for each of the three areas of this case study. The inclinations in the residents' attitude towards increasing greenery in the environment seem to be very similar in all three areas. However, the residents' intentions of participating in activities of increasing greenery seem to be relatively low in the old town area (Shourinji), while they are much higher in the newly developed residential area (Nakamozu) and in the agricultural village (Minamiyashimo).

Also, we speculate that distribution of locations, where the activities of planting/increasing greenery are expected, would influence the housewives' intention to participate in any such activities.

The data matrix consists of the above mentioned "Locations (subjects) of Increasing Greenery" and the "Attitudes towards Increasing Greenery" were analyzed for each of the three areas of this case study, as well as for the three areas as a single whole, by using the Dual Scaling Method. The, the variables of "Locations of Increasing Greenery" and those of "Attitudes towards Increasing Greenery" were arranged on a single axial by using the optimum vector No. 1, which was obtained from the above analysis. In this manner, each type of greenery was classified, and given the status in terms of how private or public it was.

Table 3. Optimum Vectors of Attitudes towards Increasing Greenery

OPTIMUM VECTORS		The 1st	The 2nd
1	Do Nothing	0.5071	0.1491
2	Maintain to the Extent of Watering	- 0.3634	- 0.1118
3	Participate in Attitudes of Increasing Greenery When Seeds and Seedlings are Provided	0.3047	- 0.2992
4	Increase Greenery ALL by Themselves	- 1.1942	0.1148
1	Gardens of Their Houses	- 0.9508	- 0.0330
2	Area around the Entrance of Their Own Houses	- 0.9150	- 0.0479
3	Live Fences of Their Own Houses	- 0.4585	0.2138
4	Roads	0.3492	- 0.1545
5	Nearby Parks	0.4512	- 0.3087
6	Rivers / Reservoirs	0.6446	0.2968
7	Schools	0.4653	0.0195
8	Shrines / Temples	0.4524	0.0318
Coefficient of Determination		91.15 %	7.48 %

The Table 3 shows the optimum vector No. 1, and the optimum vector No. 2, in case of using the entire data, and the proportions (%) of data in each of the optimum vectors respectively.

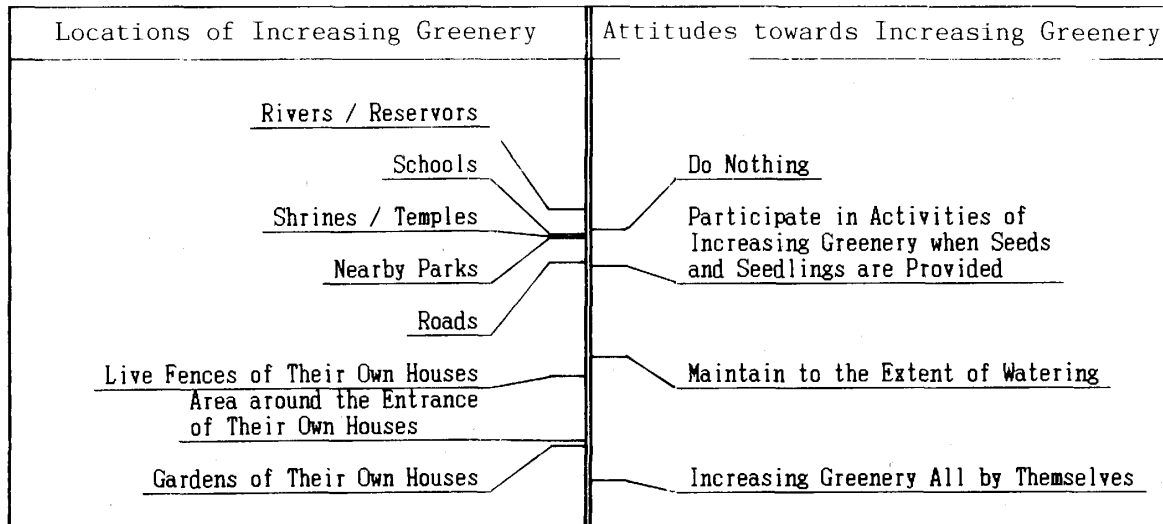


Fig. 9. Status (Private/Public) of Each Greenery

The Fig. 9 shows "The Status of Each Greenery Type" in terms of how private or public it is. From this figure, we can easily see the associations between the variables of different groups; "Gardens of their own houses" and "Area around the entrance of their own houses" with "Increase greenery all by themselves"; and "Live fences of their own houses" with "Maintain to the extent of watering." Also, we can see that housewives' intentions shift from "Participate in activities of increasing greenery when seeds and seedlings are provided" to "Do nothing," in the order: "Roads," "Shrines/temples," "Nearby parks," "Schools," and finally "Rivers/reservoirs."

Such an arrangement in association of variables shows the order of various types of greenery in terms of how private or public they are, in which "Gardens of their own houses" and "Area around the entrance of their own houses" are regarded as "Private greenery"; "Live fence of their own houses" as "Semi-private greenery"; which goes on all the way to "Rivers/reservoirs" as completely "Public greenery."

Exactly the same analysis was performed with the data of Shourinji area, of Nakamozu area, and of Minamiyashimo area respectively. In all the three areas, the "Gardens of their own houses" and the "Area around the entrance of their own houses" are regarded as "Private greenery," the "Live fences of their own houses" as "Semi-private greenery," and the "Roads," etc., are regarded as "Public greenery." Any conspicuous differences between the three areas were noted.

From these results of analysis, we can assume that the housewives are presently regarding the "Live fence of their own houses" holds a rank somewhere in between the level of completely "Private" and that of completely "Public" in the scheme of such a classification.

The "Semi-private" greenery represented by the "Live fences," which became more explicit from the above analysis, has important meaning in the development of urban

landscapes and the promotion of increasing greenery in cities in the future. In other words, it suggests the necessity of thoroughly evaluating the attitudes of residents, centering on the housewife class, towards incorporating/increasing greenery in the environment when planning the landscapes of any areas.

Based on the above discussions, the models of urban greenery (landscapes) are shown in the Fig.10 by using the scheme of classification; from the level of completely "Private" all the way to that of completely "Public"; and also by using the scheme classifying greenery by their orientation; from more "Humanity" oriented to more "Nature" oriented. In doing so, greenery was grouped into three different categories.

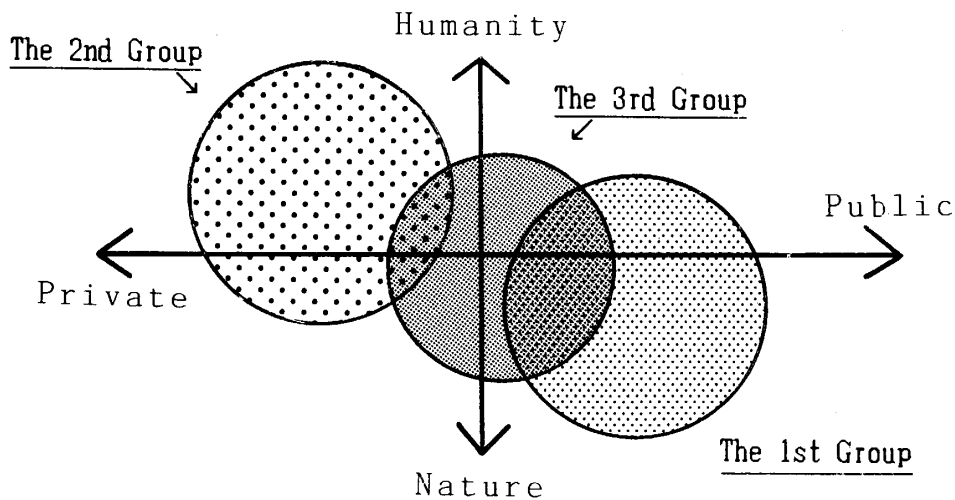


Fig. 10. Model of Urban Greenery (Landscape)

In the first group, greenery is public and more nature oriented; roadsides lined with trees, greenery in parks and public squares, etc., are included in this group. The greenery classified in this group has been taken care of mainly by various public organizations. This particular greenery has been one of the major components in the formation of urban landscapes and greenery in cities of today. This class of greenery would still be very important as one of the major components of city landscape developments and of planning incorporation/increasing of greenery in cities in the future.

The second group of greenery is private and more closely related to life activities of people, which includes greenery in private gardens, greenery in flower pots, indoor greenery, etc. This class of greenery is maintained and taken care of within more private territories. However, this type of greenery would probably still play important roles in the formation of urban landscapes and increasing greenery in cities in the future. Furthermore, this type of greenery is one of the elements which can contribute to the formation and development of local communities by providing shared interests.

The third group of greenery is that which is ranked somewhere in between "Private" and "Public." Front yards of private houses, public open spaces in commercial and business areas, miscellaneous greenery around buildings and facilities, etc., are included in this group. The greenery in this group is more important for planning the formation and development of urban landscapes, as well as for considering the manners of increasing greenery in cities, presently.

In other words, when developing the landscapes of city areas and residential areas,

such greenery can not only be considered as the subject of increasing urban greenery as in the case of "Public" greenery in the above noted first group, but also provide chances for the residents and workers to participate in the growing of greenery.

Discussion

In this study, we discussed "The Image Structure of Greenery" and "Defining the Status of Greenery, in terms of Private and Public," focusing on housewives. The results of this study are based only on the data collected by interviewing merely little more than 100 housewives. However, we can clarify the meanings of greenery which have not been discussed very profoundly before; such as the ones described with words, "Awesome" and "Solemn." In regard to defining of the status of greenery in terms of how "Public" or "Private" they are, we could give an order to the various types of greenery, based on the residents' attitudes towards the activities of incorporating/increasing greenery in their own environment. These results obtained from this study can not only be regarded as the basic concepts for considering the greenery in urban areas in the future, but also be considered to have much significance in clarifying the subject body of increasing and maintaining greenery, as well as in encouraging the residents' participation, in the formation of urban landscapes.

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