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# Research into Veranda Gardening and Greenery in Multistory Housing

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## Abstract

Veranda space at the multistory housing is very important as the substantial space to the yard and garden to give diversification and comfort to the living space and also create the good appearance and identity to the town and streetscape.

So, this research intends to discuss the contribution of veranda space by exploring veranda-based gardening activity.

As the results, the research described the veranda ranks as an important area in the creation of a comfortable living space. Problems encountered in veranda based gardening were not found to stem exclusively from environmental factors inherent in veranda design.

## Research Goal

In recent years, consumer demand with regard to living space has come to focus more on quality aspects such as comfort and diversification. In multistory housing, which fills a large part of the demand for housing in urban areas, there has been rapid improvement in the size of housing unit, quality of design, and quality and number of incidental facilities. The indoor environment has also improved. On the other hand, outdoor veranda space has not yet adequately answered the needs of housing consumers.

Veranda space in multistory housing is important not only as utility space, but also as a peaceful alternative to the yard that typically surrounds a single-family dwelling. Since veranda space makes up the facade of a building, it also plays an important role in establishing the appearance and identity of a town.

The research described in this paper was carried out against the background described above. It has tried to clarify the problems of veranda space, and thereby understand the contribution of veranda space to the development of a comfortable housing environment, by exploring veranda-based gardening activity.

## Research Method

The research described in this paper was conducted according to the research flow diagram shown in Figure 1.

### 1) *Selection of Subject Housing*

Research was conducted among the following four housing types in the Komyoike district of Semboku New Town: condominiums and flat housing (see Figures 2 and 3), high-rise housing (see Figure 4), and terrace housing (see Figure 5). Investigation focused on the depth of interest in housing conditions, and the extent of veranda-based gardening

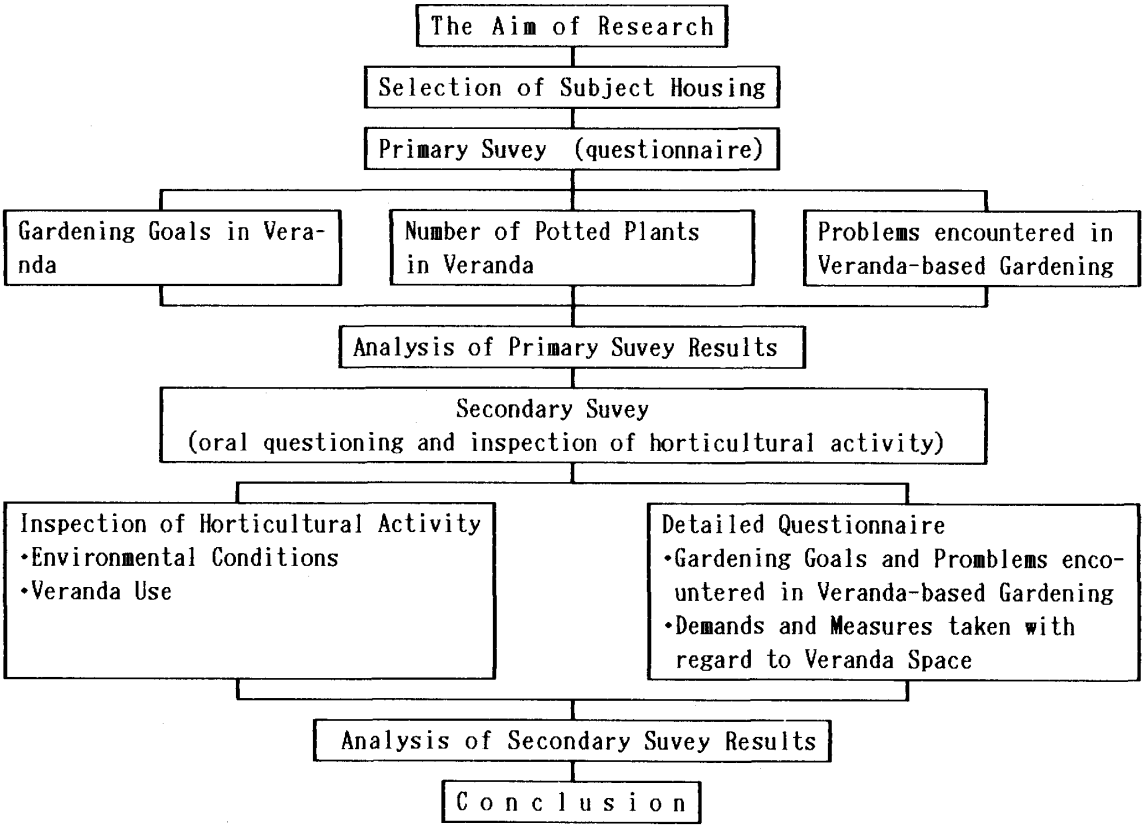


Fig. 1 Research flow diagram

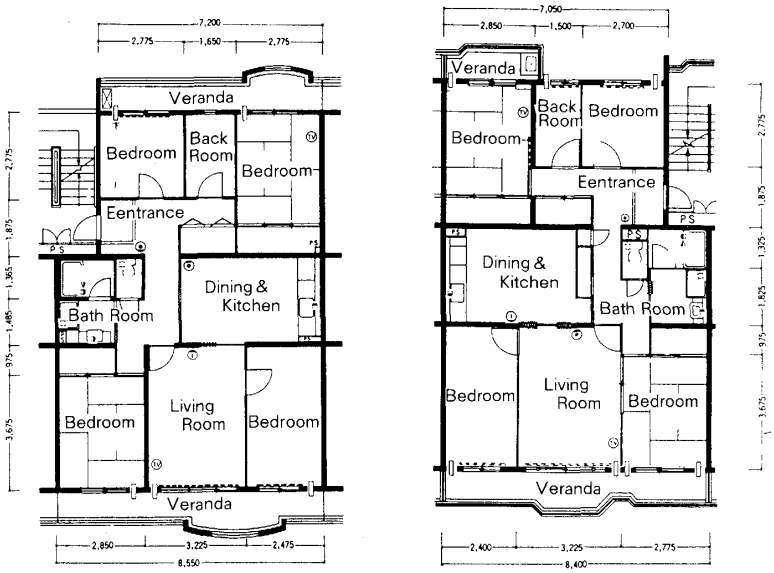


Fig. 2 Condominiums and flat housing (type A)

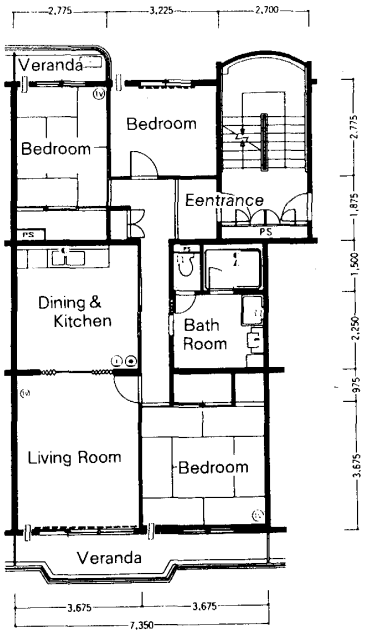


Fig. 3 Condominiums and flat housing (type B)

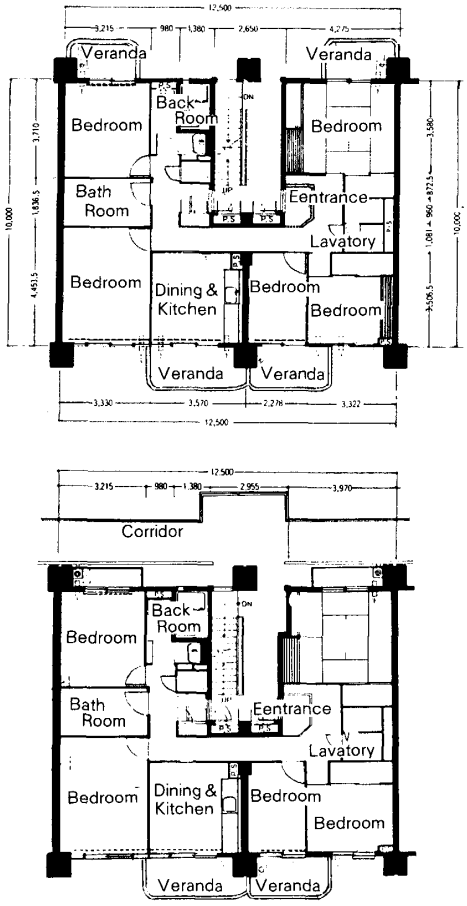


Fig. 4 High-rise housing (type C)

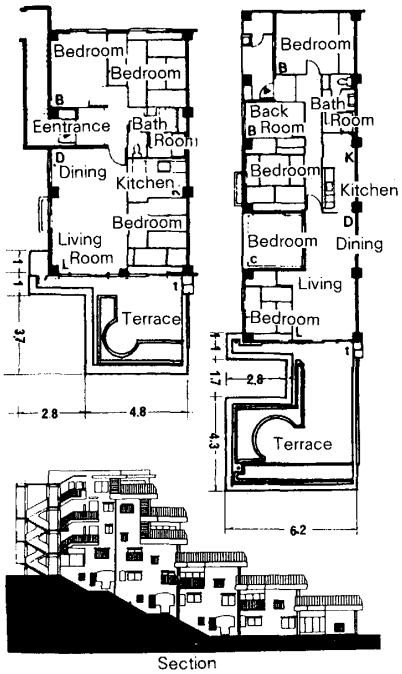


Fig. 5 Terrace housing (type D)

activity.

2) *Primary Survey (questionnaire)*

The primary survey consisted of a questionnaire that was distributed by mail to housewives in the four types of subject housing. At this stage, questions pertained mainly to each subject's gardening goals, problems encountered in veranda-based gardening, number of potted plants, etc. The primary survey was conducted in August 1987, with a sample size of 35 in each type of subject housing.

3) *Secondary Survey (oral questioning and inspection of horticultural activity)*

A few of the most enthusiastic veranda gardeners in each type of subject housing were chosen from among the respondents to the primary survey for questioning in the secondary survey. Environmental conditions and veranda use in the subject households were inspected and recorded by a visiting interviewer, who also asked detailed questions about the interviewee's gardening goals and problems encountered in veranda-based gardening, about demands and measures taken with regard to veranda space, etc. The secondary survey was conducted by two interviewers in September 1987.

4) *Analysis and Consideration*

Data obtained in the primary survey were cross tabulated by housing type and respondent's attributes in order to clarify the correlations between veranda gardening and greenery, housing type, and respondent's attributes.

Data obtained in the secondary survey were cross referenced in such a way that problems encountered in veranda-based gardening and measures taken with regard to veranda space were grouped, for the sake of clarity, according to differences in the housing environment. Similarly, these same problems and measures were also grouped according to each interviewee's attributes.

After results were analyzed by the methods described above, consideration was given to the problems encountered in veranda-based gardening and their solutions. The type of veranda most conducive to a comfortable living space was also considered.

## Results of Analysis and Consideration

1) *Analysis of Primary Survey Results*

• Goals of veranda-based gardening: Figure 6 shows the goals of veranda-based gardening by housing type. It is clear from these results that veranda-based gardening is not just a hobby, but also a way of relaxing and decorating the interior of one's home. In housing units with veranda types A and D, which have a slit-type handrail, veranda-based gardening was seen by many respondents as a means of maintaining privacy and improving the view. The important point here is that there are several roles for veranda-based gardening.

• Problems encountered in veranda-based gardening: Figure 7 shows problems by housing type. Two kinds of problems were frequently named by respondents in all housing types. The first of these was a group of knowledge-related problems, such as how to deal with damage by harmful insects and how to obtain gardening materials such as soil

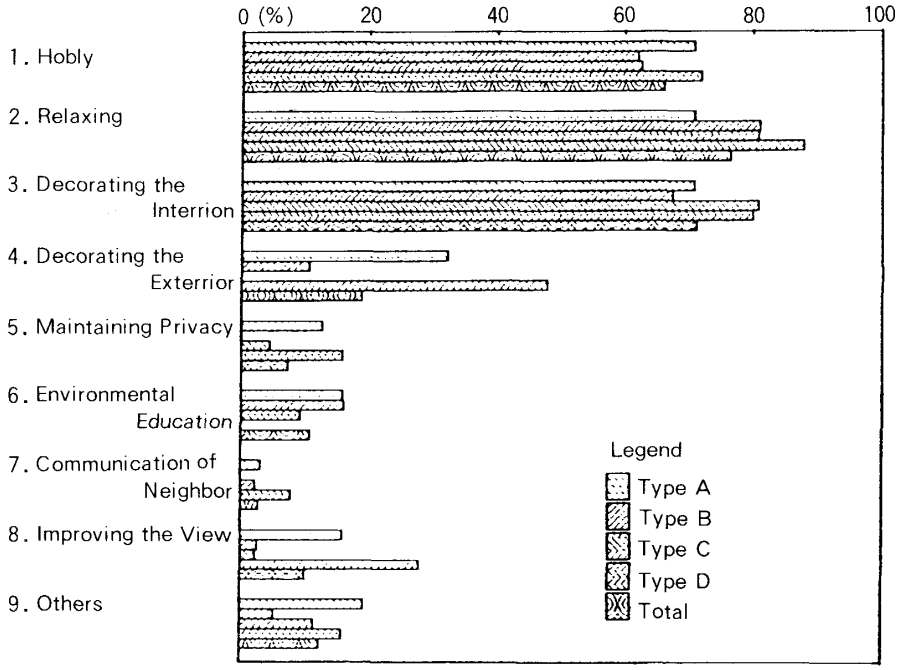


Fig. 6 Goals of veranda-based gardening

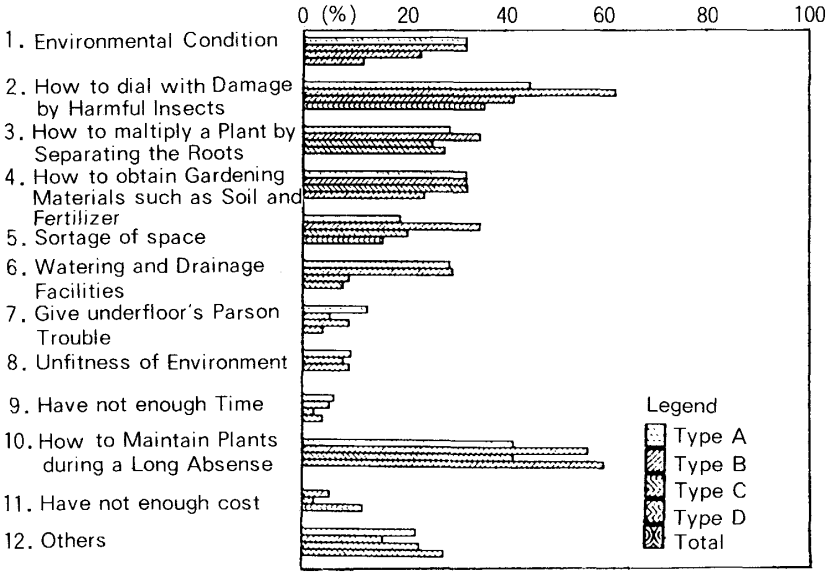


Fig. 7 Problems encontered in veranda-based gardening

and fertilizer. The other kind of problem that cut across housing types was how to maintain plants during a long absence by the resident. Other problems encountered in veranda-based gardening, such as watering and drainage facilities and shortage of space, were related to the type of veranda. For example, shortage of space was frequently mentioned where the veranda was type B, while watering and drainage facilities were identified as a problem where the veranda was type A or B.

2) *Analysis of Secondary Survey Results*

- Veranda use by housing type:

[type A] Photo 1 and Figure 8 show typical examples of type A veranda use. Along the handrail side, different types of flowers and matching colors create an attractive display when viewed from the outside. Shelves and hanging pots make it possible to utilize veranda space vertically, thus contributing to a neat, tidy look even when the number of potted plants is relatively large. Because shelves take a lot of space, however, they make gardening work difficult on a shallow veranda.

[type B] photo 2 and Figure 9 show typical examples of type B veranda use. Shelves are placed along the inside wall of the veranda, while a pet arm is used along the handrail side so that space can be utilized vertically. Excessive drying of soil caused by exposure to sunlight and wind is countered by a reed screen and a large potted plant.

[type C] Photo 3 and Figure 10 show typical examples of type C veranda use. Three generations occupy this living space, including small children. Because the veranda is used as a clothes drying area, storage area, and children's play area, space is inadequate. The veranda is panelled on the handrail side, so some plants suffer from a lack of sunlight. Plants that require a lot of sunlight need to be raised up on a platform.

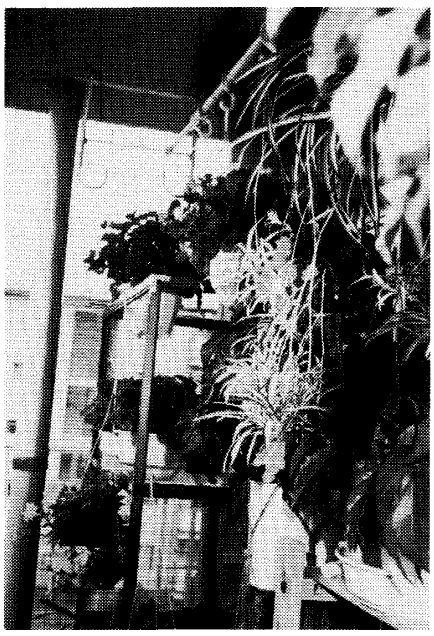

Photo 1 Housing type A

Photo 2 Housing type B

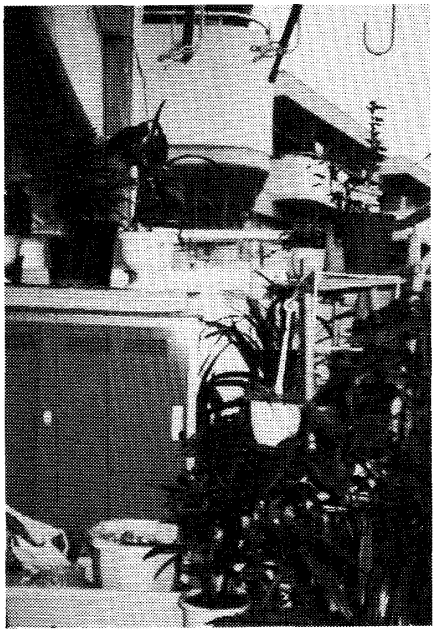

Photo 3 Housing type C

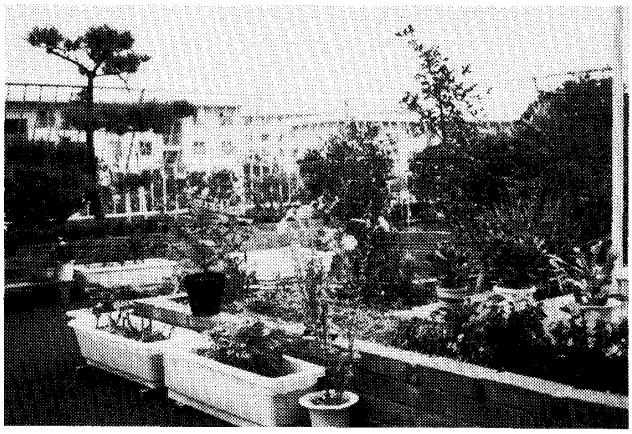

Photo 4 Housing type D

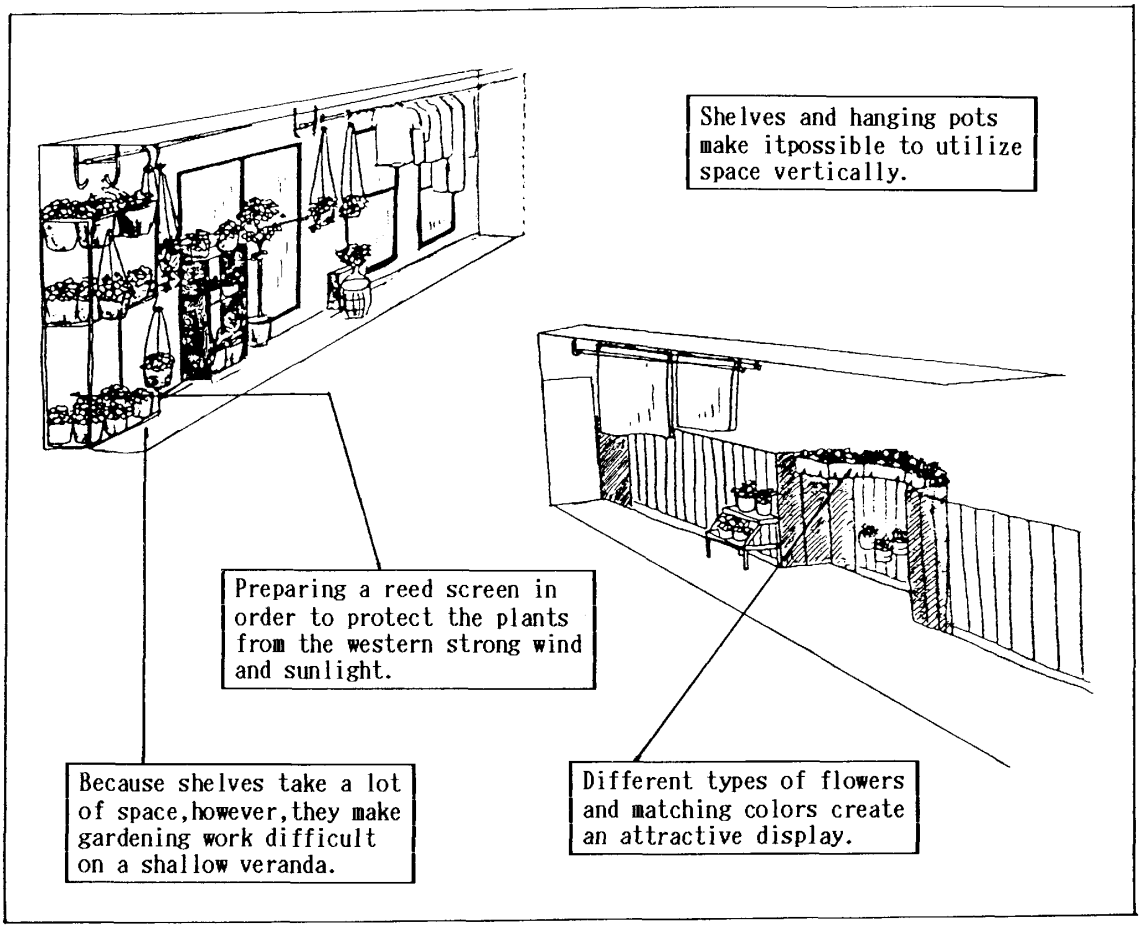


Fig. 8 Veranda use by type A

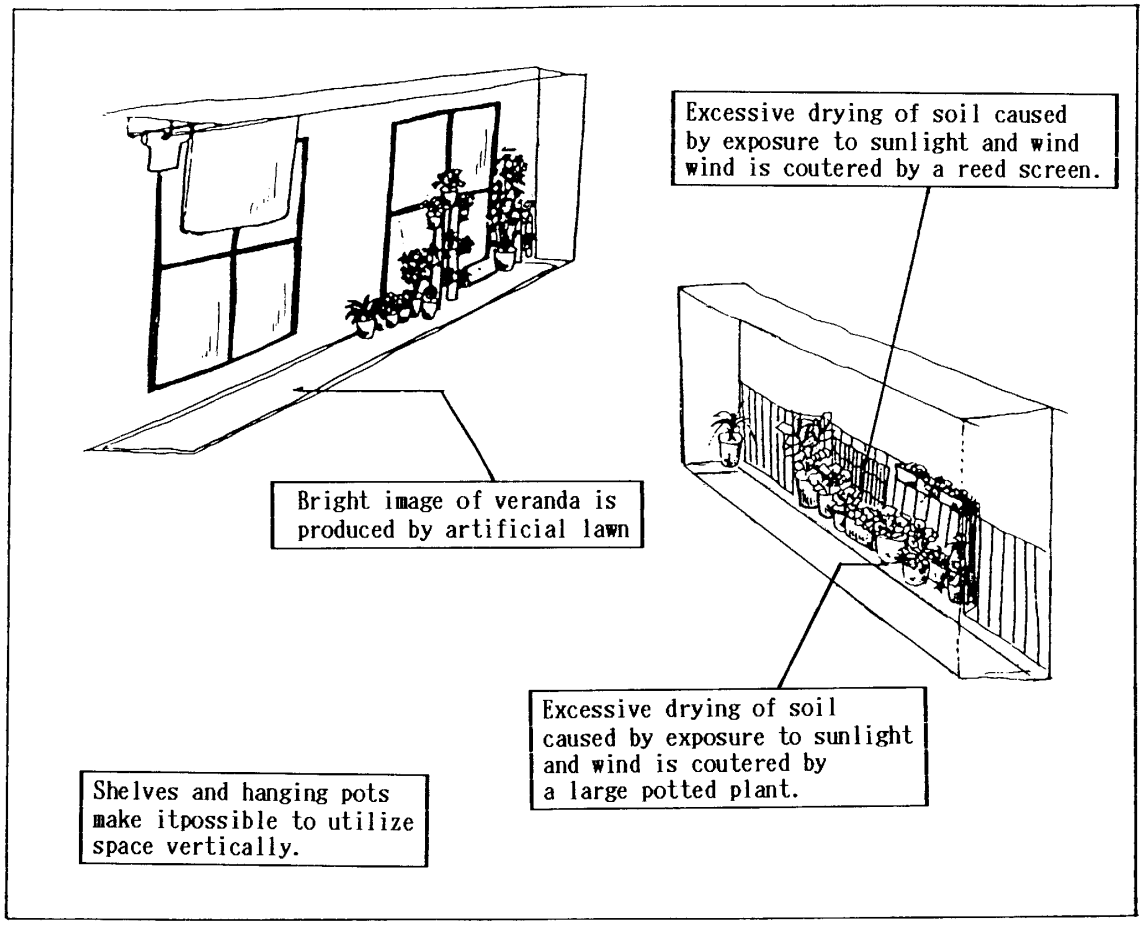


Fig. 9 Veranda use by type B

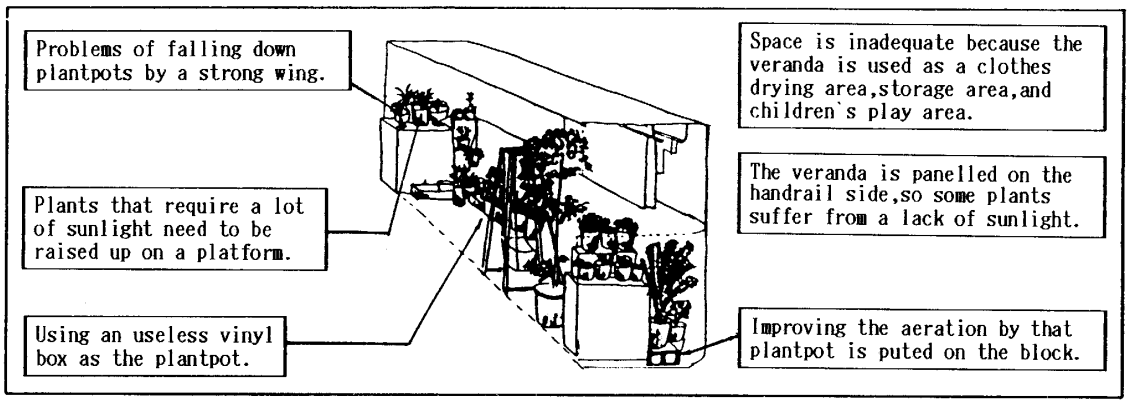


Fig. 10 Veranda use by type C

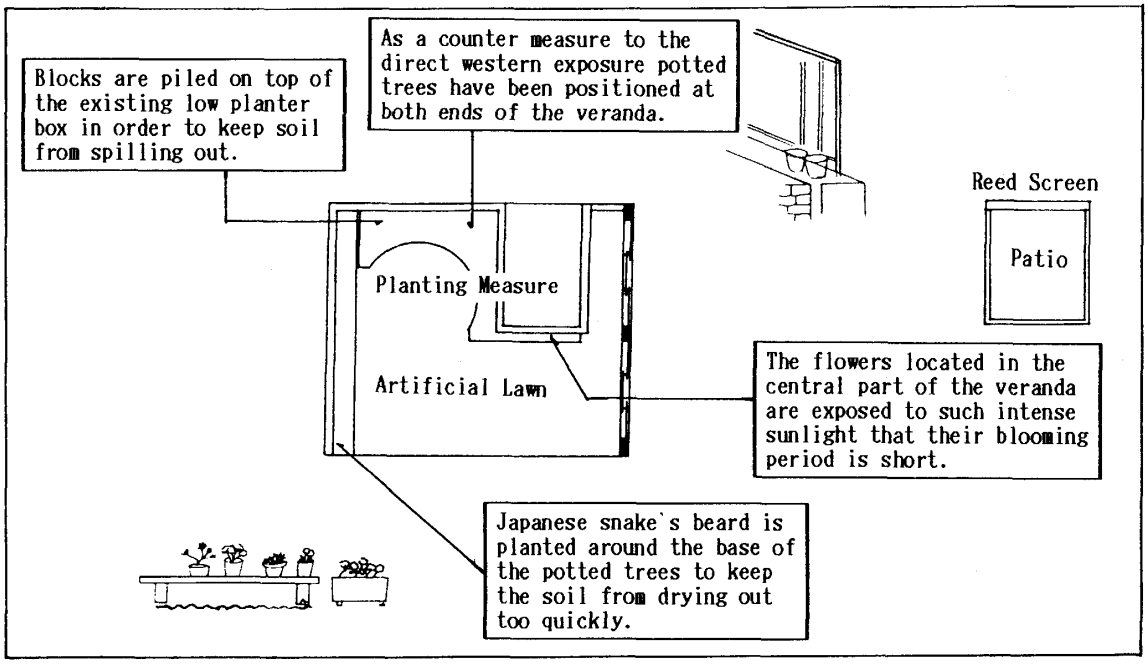


Fig. 11 Veranda use by type D

[type D] Photo 4 and Figure 11 show typical examples of type D veranda use. Blocks are piled on top of the existing low planter box in order to keep soil from spilling out. As a countermeasure to the direct western exposure, potted trees have been positioned at both ends of the veranda. Still, the flowers located in the central part of the veranda are exposed to such intense sunlight that their blooming period is short. Japanese snake's beard (*Ophiopogon japonicus*) is planted around the base of the potted trees to keep the soil from drying out too quickly.

• Results of oral questioning: Tables 1 show the results of oral questioning and inspection of horticultural activity on the four types of veranda described above.

[Environmental problems and countermeasures] Western exposure to sunlight and wind was among the leading environmental problems. Conversely, lack of sunlight was a problem where panelling was used on the handrail side of the veranda, while excessive sunlight and wind were problems where a slit-type handrail was used. The problem of strong wind was mentioned by residents of high-rise housing.

Excessive exposure to sunlight and wind were countered with reed screens, specially constructed shelters, and plants that can be used as windbreaks and sunshades. In buildings with continuous balconies, it was found that environmental adjustments could be made by moving potted plants.

[Maintenance problems and countermeasures] The most commonly raised maintenance problem was the lack of watering facilities on the veranda. Interviewees with verandas widely separated from water outlets, such as type A and B verands, expressed a strong desire for more conveniently positioned faucets. The problem of how to maintain plants during a long absence by the resident is a possible topic for future research.

Two possible solutions to maintenance problems include a handy automatic irrigation system and some sort of "plant hotel" to look after plants whose owners are temporarily absent.

Table 1 The results of oral questioning and inspection of horticultural activity

| | | | Causes | Problems | Possible Solutions / Countermeasure |
|---|---|---|---|---|---|
| Environmental Condition | Form of Veranda | Exposure | • Southwest exposure | • In summer : excessive sunlight and temperature<br>• In winter : lack of sunlight and temperature<br>• All the year : excessive wind | • Southeast or south exposure<br>• Panelling a part of veranda (western side or high-rise housing)<br>• Planting ivy as windbreak and sunshade<br>• Preparing reed screen or shelters |
| | | Form | • Continuous balconies<br>• Single balconies<br>• Roof terraces | • Less effected by environment outside<br>• More effected by environment outside<br>• More effected by environment outside | < Form of Handrails ><br>• A slit-type handrail ↔ a panelled handrail |
| | | Handrail | • A slit-type handrail | • In summer : excessive sunlight<br>• In winter : lack of temperature<br>• All the year : excessive wind | • Panelling a part of veranda (western side or high-rise housing)<br>• Planting ivy as windbreak and sunshade<br>• Preparing reed screen or shelters |
| | | | • A panelled handrail | • In winter : lack of sunlight and temperature<br>• All the year : excessive wind | • Rising up plants on the platform |
| | Floor of resident | | • A high-rise housing | • In winter : lack of temperature<br>• All the year : excessive wind | • Panelling a veranda on the handrail side |
| Maintenance | Maintenance during a long absence | | | | • Lending a handy automatic irrigation system<br>• Some sort of "plant hotel" to look after |
| | Water supply | | • Luck of watering facilities on the veranda<br>• Plants are separated form water outlets | • Taking much time<br>• Taking muchu labor<br>• Spilling water on the floor | • Preparing water facilities on the veranda<br>• Preparing water facilities by the veranda |
| | | | • A slit-type handrail<br>• Putting the plant on the side against the wind<br>• A small potted plant | • Water drops downstairs<br>• Excessive drying of soil | • Utilizing a large potted plant |
| | Fertilizer Insecticide | | | • Smelling bad<br>• Flys swarm | • Utilizing in the soil |
| | Change pots Division | | • Lack of place | • No place to put on the pot for division plant | • Managing second-use system |
| Place | Place | | • Small children<br>• A lot of families<br>• Shallow veranda<br>• No light on a veranda | • Lack of place to plant<br>• Difficult gardening condition | • Utilizing veranda space vertically<br>• Deep veranda<br>• Preparing lighting system |
| Information / Knowledge | Community | | • Panell | • Difficult to organize community | |
| | Information and Knowledge | | • Shortage of information souces | • Shortage of Knowledge concering veranda-based gardening | • Increasing information souces concerning veranda-based gardening<br>• Training leaders of gardening |
| How to use the veranda space | Sorts of plants | | • Ornamental foliage plant<br>• Succulent plant<br>•<br>• Flower | • Keeping a cool place to move plants during hot weather and a warm place in winter<br>• Difficult to maintenance<br>• Cost | • A north veranda or garden space<br>• Delivery of seeds suitable for veranda-based gardening |
| | Arrangement | | • Arranging the plants on the floor | • Feeling the veranda narrow<br>• Difficult gardening condition<br>• A unattractive display when viewed from the outside | • Utilizing vertically by using shelves<br>• Utilizing hanging pots<br>• Arranging the flowers on the side of the handrail |
| | | | • Arranging the plants along the handrail | • Water drops downstairs<br>• Excessive drying of soil<br>• Plant pots fall down | • Utilizing a larger potted plant<br>• Utilizing pet arms |
| | | | • Arranging the plants on side of the room | • A unattractive display when viewed from the outside | • Utilizing shelves<br>• Utilizing hanging pots |

[Space problems and countermeasures] Shallow verandas, and therefore difficult gardening conditions, were the rule in all types of housing except terrace housing.

One solution would be to increase veranda space, perhaps by replacing separate verandas with a continuous balcony. A north veranda or garden space is very important as a place to move plants during hot weather, just as a warm place is necessary in winter. Shelves, pet arms, and hanging pots are desirable because they make it possible to utilize limited veranda space more efficiently.

[Information/knowledge problems and countermeasures] A shortage of information sources was mentioned. Wider distribution of specialty gardening magazines and easier access to horticultural specialists would ease this problem.

## Conclusion

It was found through the research described above that veranda-based gardening in multistory housing plays a variety of roles. Clearly, the veranda ranks as an important area in the creation of a comfortable living space. Problems encountered in veranda-based gardening were not found to stem exclusively from environmental factors inherent in veranda design, such as direction of exposure, depth and area of veranda, presence or absence of panelling on the handrail side, etc. Individual factors such as the resident's attributes, the story (height) of the housing unit, and the variety and arrangement of plants were also found to be influential. Furthermore, in addition to the importance of physical planning, this research shows the necessity of "software planning" in realizing the full potential of veranda-based gardening.

## References

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