

Symbiotic Housing **in Tokyo**

The Setagaya-ku Fukasawa
Symbiotic Housing Project



Abstract

- 1** What are sustainable buildings
- 2** The symbiotic housing in Tokyo
- 3** The investigation and conclusion

What are “sustainable buildings”?

- ❖ **“Building that can moderately maintain or improve the quality of life and harmonize with the climate, tradition, culture, and the environment in the region, while conserving energy and resources, recycling materials, and reducing hazardous substances within the capacity of the local and global ecosystems throughout the building life cycle.”**

Problems

**Caused by the rapid rate
of housing production**

**consumption
of large
amounts of
energy and
natural
resources**

**The mixed
disposal of
demolished
houses**

Tokyo - a big urbanized city

**green
space**

Tokyo: 3m^2 per person

London: 27m^2 per person

New York: 29m^2 per person

Tokyo - a big urbanized city

- ❖ **The city currently emits 1% of the world industry output of CO₂.**
- ❖ **The heat island effect makes the summer in the city a feat of endurance.**
- ❖ **Many houses built in the city are still demolished after only 25 years rather than reach their potential lifespan.**
- ❖ **This “scrap and build” method is extremely a waste of both energy and building materials.**

Setagaya-ku Fukasawa Symbiotic Housing

The first public and environmentally sustainable symbiotic housing complex in Japan

A project for 70 low-income households in Tokyo

World Habitat Awards 2001

Energy use is reduced while comfort levels are increased

Costs are no higher than other public housings

Social integration and community participation



overview

Setagaya-ku Fukasawa Symbiotic Housing

- ❖ **Total area: 7,388m².**
- ❖ **It consists of five apartment buildings.**
- ❖ **70 dwelling units: 43 for low income residents, 17 for older persons and 10 for middle income residents.**
- ❖ **25 parking areas are provided.**
- ❖ **Communal facilities: a day centre, a meeting hall, children's playground, gardens and flower beds.**



Thermal insulation system & Energy and water saving equipment

- ❖ A solar collector provides sufficient energy for heating, hot water, the outdoor lamps and a public clock.
- ❖ Two small wind turbines circulate water in the brook.
- ❖ All the streets and parking areas are permeable in order to collect and save water.
- ❖ Rainwater is collected in individual tanks for plant watering and in a 60m³ rainwater reservoir under the buildings.
- ❖ A windmill outside the buildings used to provide electricity.



Green space & Buffer zones function of plants

- ❖ 17 mature trees are preserved.
- ❖ Bamboos grow in tanks of soil and 160 other smaller trees are relocated.
- ❖ A biotope garden accommodates a variety of plants, birds and insects, while producing cool air in the humid and hot summer.
- ❖ Green rooftops and walls improve the urban thermal conditions.
- ❖ Intensive monitoring has shown that the ground surface conditions improve the micro-climate in the buildings.



For disabled and elderly

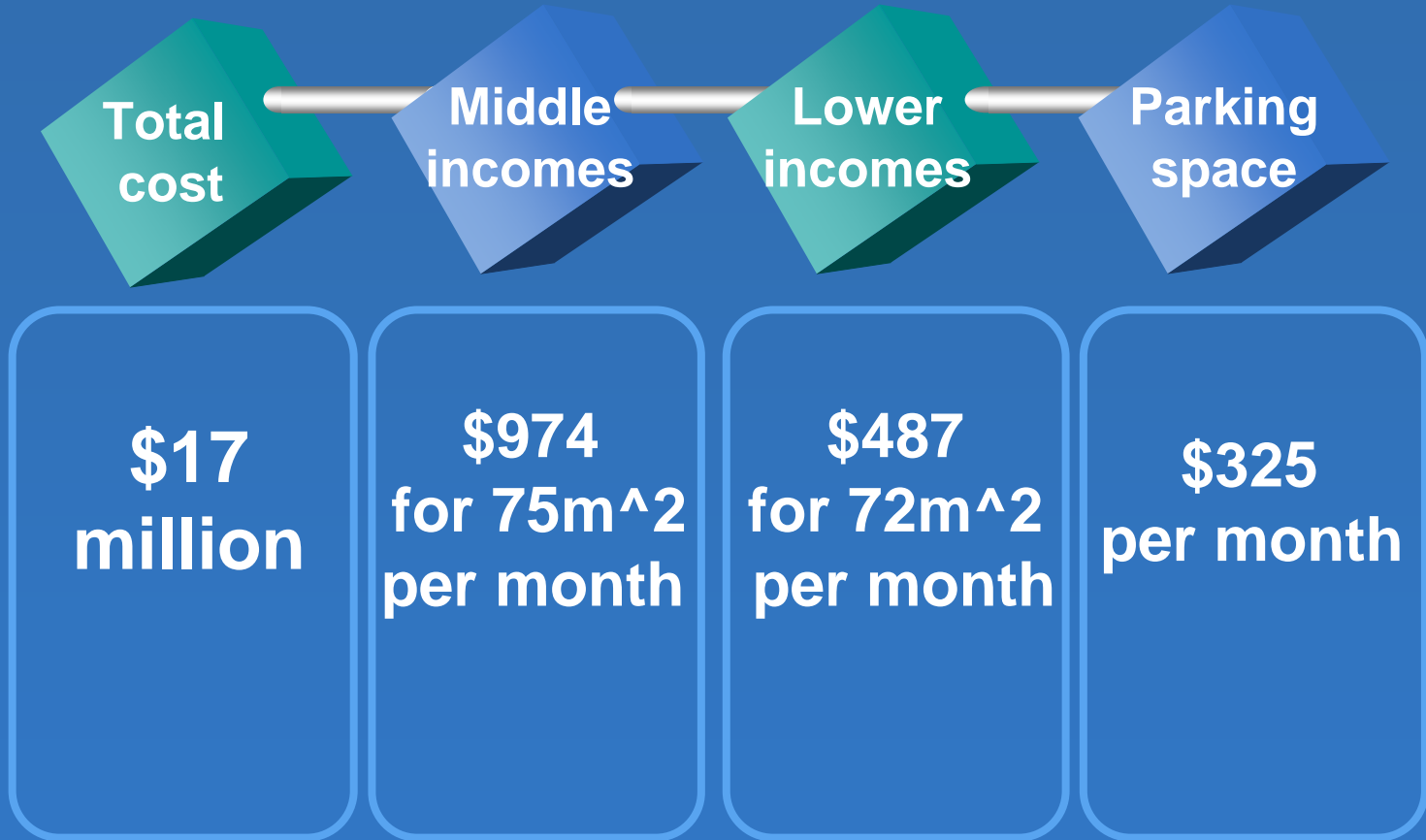
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Handrails in the aisle

Cost & Rental



Marketing Diagram

An investigation of the residents

about the satisfactory level
in the buildings and community

**Harmonious
relationships**

**Comfortable
living
conditions**

**Trash
collecting
affairs**

**Aging
problem**

Conclusion

- ❖ **Goal: making a comfortable living environment, interrelationship with both the nature and the neighbors.**
- ❖ **It demonstrates the value of smaller independent systems of water and energy supply, and the value of living together in a close neighborhood.**
- ❖ **Limits of this project: one is the funding. It's hard to convince the investment companies to build such houses for the low income residents in the urban of Tokyo, where the price of land is extremely high. And it's almost impossible to get the government's support every time.**

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Thank You !

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